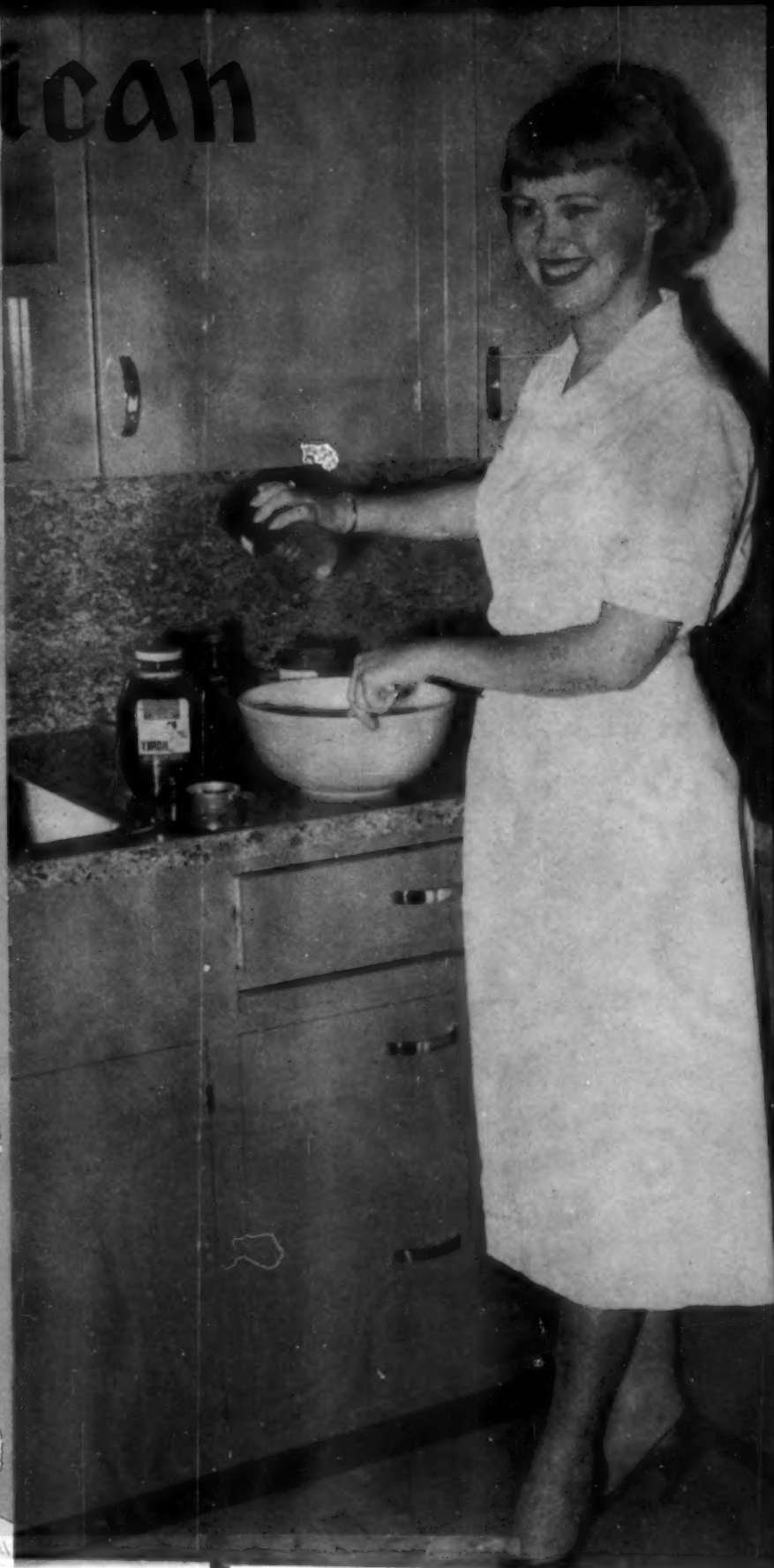


# American BEE JOURNAL

Vol. 97 No. 12 1957

**DECEMBER**



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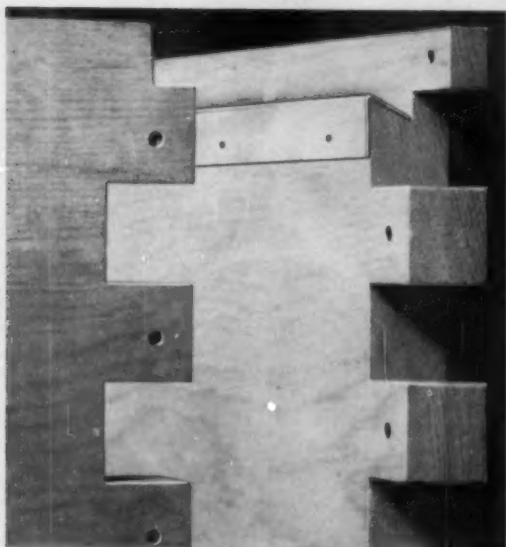
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# CONTENTS

The Commercial Beekeeper .....	459	Plant Breeding for the Amateur— Donald C. Chandler .....	469	Notes from Israel—Yacob Bizak .....	475
The O.A.C. Pressure Strainer—G. F. Townsend and A. Adie .....	460	Father and Son—Robert Kinnersley .....	469	The Possible Use of Microorganisms in Synthetic Bee Bread Production —Homer Len Foote .....	476
Plan for Intensive Beekeeping—Earl C. Robinson .....	462	Pat's Puzzle—Mrs. Walter Diehnelt .....	470	Engineering Studies to Modernize Honey Production .....	478
The Hofmann Story—G. H. Cale .....	464	The Beginner and His Bees .....	471	A Report of the Southern Conference H. L. Maxwell .....	479
The Sideline Beekeeper .....	465	Advice for the Beginner—W. W. Clarke, Jr. ....	472	Meetings and Events .....	480
Refurnishing Comb Honey Supers— J. Herbert Fretz .....	466	Our Cover Picture—Marilee Ammer .....	473	Crop and Market—M. G. Dadant .....	490
Buying American Foulbrood—Charles W. Lindsey .....	468	Petro Prokopovich, A Ukrainian Bee- keeper, Teacher and Scientist— Mykola H. Haydak .....	474		

## The American Bee Journal

— Hamilton, Illinois

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"Lo, the star — went before them,  
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# —Advertising Index—

Aeppler Co., C. W. ....486, 490	Harper, Carlus T. ....487	Rossmann Apiaries .....456
American Bee Journal .....455, 485	Hazel-Atlas .....484	Shackelford, John S. ....487
American Rabbit Journal .....482	Honey Sales Co. ....483	Sioux Honey Association .....485
Bee World .....455	Hutchison Mfg. Co. ....455	Stoller Honey Farms .....487
Bessonet Bee Co. ....487	Jackson Apiaries .....482	Stover Apiaries .....455
Blue Bonnet Apiaries .....487	Jensen's Apiaries .....483	Strachan, Don J. ....487
Bordelon, E. J. ....483	Johnson Co., Carl E. ....482	Sunkist Bee Co. ....487
British Bee Journal .....482	Kelley Co., Walter T. ....483	Sunrise Apiaries .....455
Burleson & Son, T. W. ....483	Koehnen & Sons, C. F. ....483	Taylor Apiaries .....482
Calvert Apiaries .....483	Leahy Mfg. Co. ....456	Taylor, E. R. ....487
Canadian Bee Journal .....487	Little's Apiaries .....482	Taylor, Stewart .....482
Chrysler Son, W. A. ....483	Lotz Co., August .....457	Walker, Eugene .....483
Cloverline Apiaries .....458	McCord Mfg. Co. ....487	Weaver Apiaries .....483
Cobana Products .....482	Marshfield Mfg. Co. ....485	Weaver, Howard .....482, 487
Conneaut Can Co. ....455	Mitchell's Apiaries .....489	Wenner, C. G. ....482
Couch, Louis G. ....483	Neiman Bros. ....455	West, M. C. ....455
Cutts & Sons, J. M. ....455	Petorama .....483	White Pine Bee Farms .....482
Dadant & Sons, Inc., .....489	Plant, W. E. ....482	Wicht Apiaries .....487
Inside front cover, back cover	Reams, W. D. ....482	Wilbanks Apiaries .....455
Eabe Laboratory Sup. ....487	Rives, J. C. ....482	Williams Bros. Mfg. Co. ....482
Finger Lakes Mktg. & Sup. Co. ....457	Root Co., A. I. ....487, Inside back cover	Wing & Sons, J. E. ....482
Forehand & Sons, W. J. ....489		Winslett, D. T. ....489
Garon Bee Co. ....455		Woodman Co., A. G. ....482
		York Bee Co. ....Inside front cover

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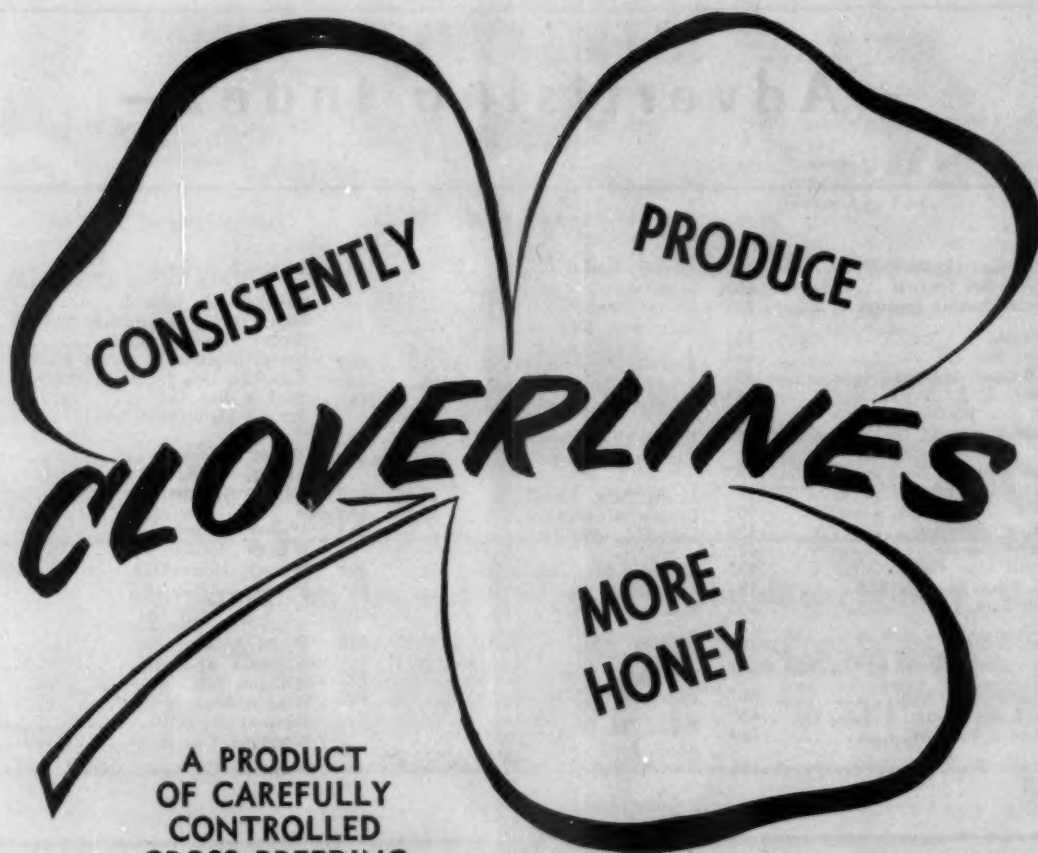
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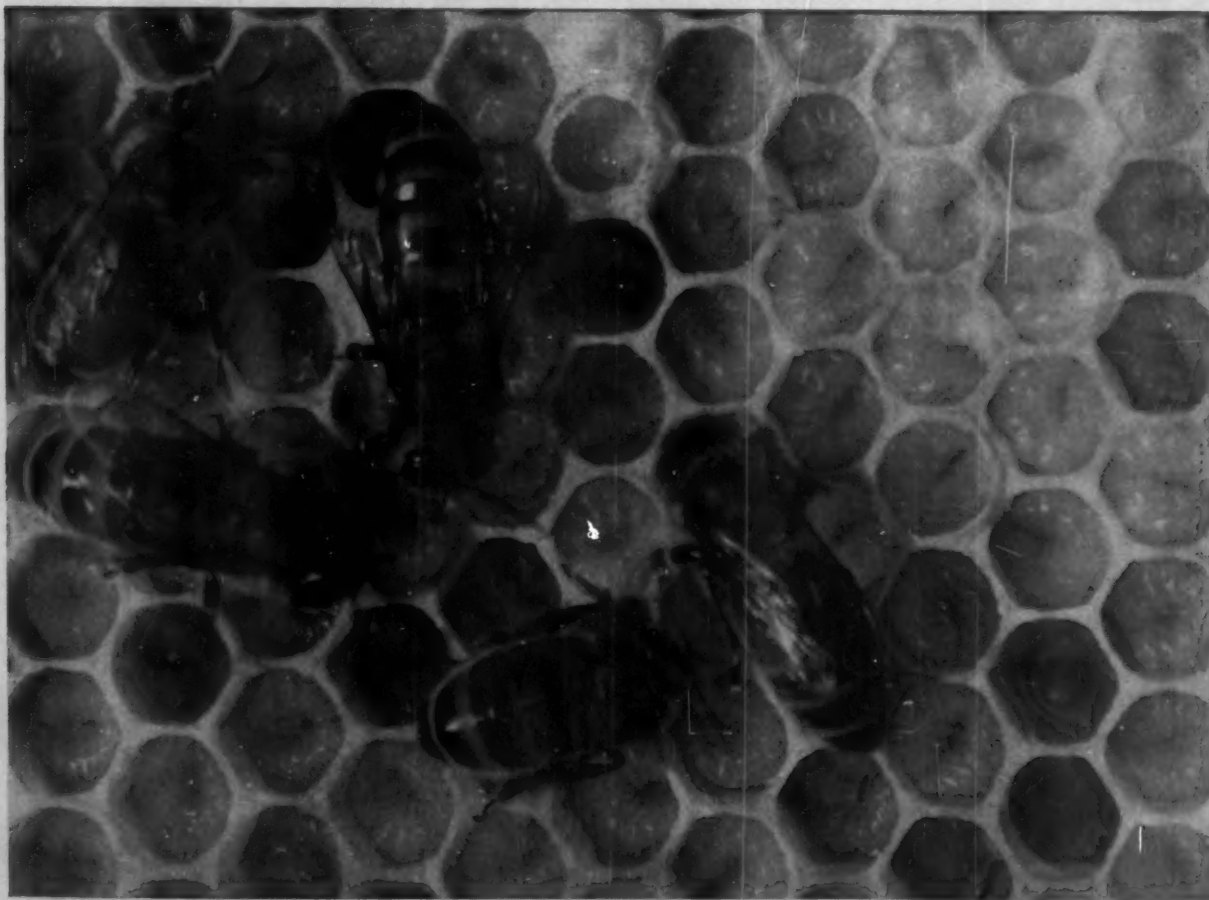
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# The Commercial Beekeeper

How come this picture covers the commercial section? Good question. Let's peek in on a secret. We forgot to have a better picture, one more suitable to the place, so when make-up time came this one had to pinch-hit. But it's not so bad. At least it is a very good likeness of a portion of the brood as we like to see it; nice plump larvae that stand right up and glisten. The brood is all about the same size and that indicates that her majesty is not wandering around laying here and there. Most of her eggs must be viable and so capable of hatching. Sometimes not all eggs hatch and the result is spotty brood and likely a poor queen.



# The O.A.C. Pressure Strainer\*

by G. F. TOWNSEND — A. ADIE

Department of Apiculture, Ontario Agriculture College

Straining has been one of the greatest problems in the extracting and handling of honey. Many types of strainers have been developed, most of which depend on a gravity flow and a large straining area. No strainer previously developed will handle a large volume of honey without frequent cleaning, and any strainer will clog readily if any granules are present in the honey.

The strainer in this circular can be used with modifications for any straining condition. The capacity of the strainer should be sufficient to handle on most occasions the whole crop without the necessity of cleaning the strainer.

The principle involved is simple. The particles of wax, other refuse, or granules are trapped and suspended in a layer of crushed granite or silica. This considerably delays the clogging of the screen.

## Requirements

For satisfactory operation, several requirements are necessary. The honey should flow from the extractor into a large sump tank which is provided with a series of screens to remove the larger particles of foreign material. Across the sump tank, three removable screens ranging from 1/2-inch, 1/4-inch, and 1/12-inch mesh are quite satisfactory. The honey is then pumped at a steady flow approximately equivalent to the extracting rate by the use of a positive delivery honey pump which has been geared down to the proper speed. Before being strained, the honey must be warmed to the appropriate temperature. This may be accomplished by jacketing part of the honey line and passing a flow of hot water around this section of the pipe. The water may be heated by steam or propane gas and recirculated. For day-to-day operations the strainer must be kept warm over night. This may be accomplished at room temperature (70° F.) by a 100-watt electronic band heater. No insulation should be provided unless the room is quite cold.

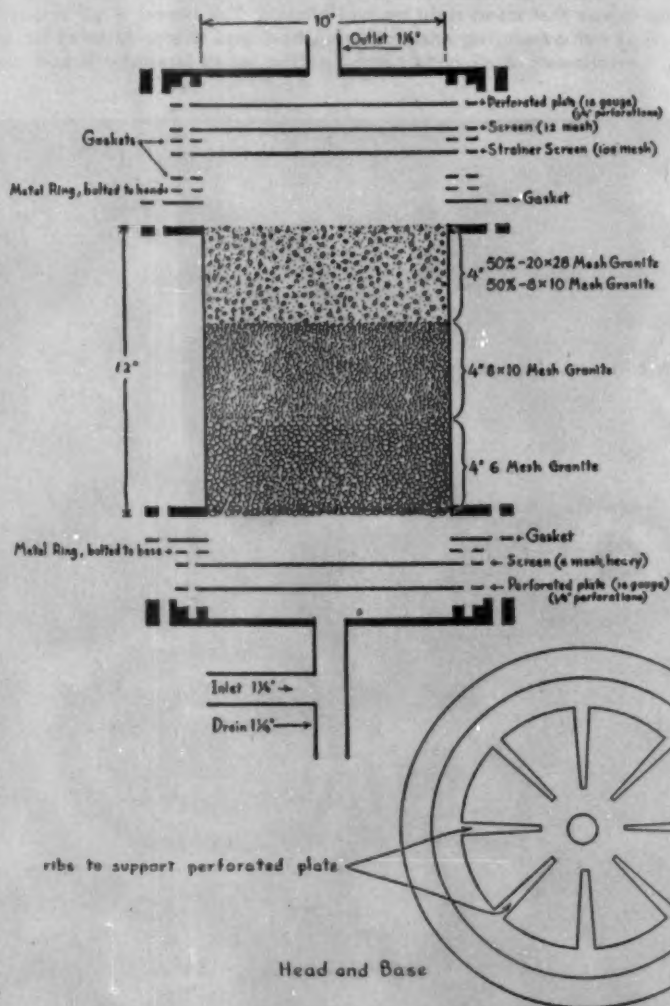
\* This is a complete reprint of Circular 218, Ontario Agricultural College, by G. F. Townsend and A. Adie.

If insulation is used, a thermostat is necessary.

## Construction

There are several ways in which the strainer may be constructed or operated. The following has been found to be the simplest and most efficient. An increase in size of the cylinder may be of some assistance, which, however, is accompanied by an awkwardness in handling when it is being cleaned. The straining unit consists of a cylinder 10 inches in diameter and 12 inches deep, which holds crushed granite. The top and

bottom are gasketed and bolted in place. The honey is forced up from the bottom through a 16-gauge supporting plate with 1/4-inch perforations and a 6-mesh heavy-wired screen. This screen supports the water-washed granite. Three 4-inch layers of granite are used. On the bottom is a layer of 6-mesh granite. The second layer is 8-by 10-mesh granite and the third layer a mixture of equal parts of 8-by 10-mesh and 20-by 28-mesh granite. The cylinder is filled tightly with granite. The straining screen is supported in the







Package Unit



Strainer

lid and consists of a 105-mesh Duralloy or Monel Metal, free bolting cloth metal screen with suitable supporting plates. Details of construction are given in the diagram.

#### Operation

The temperature can vary according to the operating conditions.

For normal extracting conditions where no granulation is present, the temperature of the honey must be at least 110°F. If granules are present in the honey being extracted, the temperature must be increased to 120°F. This temperature will melt the granules suspended in the granite but will not soften the wax sufficiently to let it pass through the strainer.

The same principle for the use of the strainer is applicable in both the packing plant and the honey house.

When the honey has had a preliminary straining, the pressure strainer may then be used for the final straining between the pasteurizer and the coolers for bottled honey. In this case a 6-inch layer of 20-by 28-mesh granite is placed under a 200-mesh stainless steel screen in a one-half depth or 6-inch strainer. The straining temperature must be between 165° and 175°F. If the temperature is lower, the use of a coarser straining sand is advisable.

In most cases, the operating pressure will reach 10 to 15 pounds for a flow of 300 pounds per hour at 120°F. The pressure will slowly increase during the operating period. Normal operating pressures will increase with increased volume or decreased temperature. When the pressure becomes excessive, it is time to shut down and change the granite. In packing plants it might be advisable to use alter-

nately two strainers in order to avoid an interruption in the flow. Two strainers in parallel could be used to handle a larger flow at lower pressures.

#### Cleaning

The strainer can be cleaned quite readily. The honey is drained off through the bottom, the strainer disconnected, and the granite removed. The screen is washed with cold water and the cylinder recharged. When the cylinder, which holds 50 pounds of granite, is well drained, six pounds of honey is lost in this cleaning process. If the screen becomes clogged with wax particles, it may be shaken in carbon tetrachloride and then washed. *Since carbon tetrachloride fumes are dangerous, the amount used should be limited and the cleaning done in a closed container out-of-doors.* A complete change-over should not require more than 15 minutes' time.

#### Safety Pressure Switch

This strainer should not be used without installing a pressure switch in the honey line to shut off the honey pump if pressures exceed 80 p.s.i. A switch similar to those used in water systems is suitable.

#### Package Unit

A package unit consisting of sump, pump, heat exchanger (propane gas), and strainer is available in 300-pound-per-hour capacity. There will shortly be one available in 1000-pound-per-hour-capacity.

#### NOTE

1. This strainer will not operate with honey below 110°F., nor will it operate with cold honey in the strainer.
2. It will handle a flow of honey up to 1000 pounds per hour provided the honey is at 115 to 120°F.
3. It is essential to use a suitable sump tank to remove the coarse material when the strainer is used for freshly extracted honey.
4. The April, 1954, edition of this circular described the introduction of the honey at the top of a larger cylinder partially filled with one layer of granite, the first straining screen being on the bottom. While this method is quite satisfactory, a longer operation and greater ease in handling with a smaller unit is possible if the procedure outlined in this revision of the circular is followed.

# PLAN OF WORK FOR INTENSIVE BEEKEEPING

by EARL C. ROBINSON, Olewain, Iowa

The management described here is based upon the basic fundamentals of good beekeeping. By striving for strong colonies with plenty of feed, the surplus crop will be the largest obtainable under existing conditions.

Modern farming methods take our prospective main crop, and we must settle for a secondary crop from a second growth and bloom. First-crop clover goes for grass silage or early hay. A profitable crop must come from what used to be considered minor sources. Only the best colonies can store a good crop. Under these conditions we must have and hold several generations of field bees to get profitable crops. Any colonies below average strength are united to build up the field force of remaining units.

Our plan takes advantage of a fairly dependable fall (heartsease) flow which is held in the comb for next season's feed. Heartsease honey is worth more converted into bees to harvest the next season's crop of white honey than it is worth after it is extracted to be sold on the current season's market. This makes cheap feed since we save the labor of extracting, cost of cans and shipping the honey to market. In addition, we save the labor of mixing and feeding sugar, which costs much more per pound than heartsease honey will sell for.

What we gain most here is getting the bees into the white honeyflow with the side combs in the brood nest still full of last year's heartsease honey. There is no loss of white honey in the brood nest since all new nectar must go into the supers.

*Fig. 1.* An average two-story colony plus one shallow super of fall honey that is left for food.

*Fig. 2.* Same colony rearranged through March if at all possible. This work is done on cold days when the cluster is small. Bodies have been separated, lower body of empty combs inside, combs culled and solid combs of fall honey placed in on both sides to replace empty combs. If we have two combs of honey for each side or a total of four combs of honey to put in at this time, our feeding is done for the season. Combs of honey put in hive on cold days

will not cause robbing and the bees do not bother while being worked. The body with cluster has been placed on top (warmest part of the hive) with a shallow super of honey below but within reach of the cluster. The bees start using this honey and move it up.

*Fig. 3.* Same colony in April with expanded cluster. Shallow super of honey now at bottom. Brood bodies have not been reversed yet. Honey in shallow super being used or moved up by the bees.

*Fig. 4.* Through May brood bodies are reversed, queen excluders put on, shallow super placed above excluder and one extracting super on top. This is what we want when the main flow starts. The second brood body should be solid brood except the outside combs which should still be full of fall honey. Strong colonies use

plenty of feed just before the clover flow and the shallow super is usually empty at this time.

*Fig. 5.* Main flow on. We never stack on the extracting supers but give them as needed. The combs in the shallow supers are mostly dark combs and will attract the bees up through the excluder. The extracting supers have white combs and the bees will not carry old honey stores up into them.

*Fig. 6.* Metal frame spacers are used in all supers, 8 combs in 10-frame supers. Maximum crop with minimum of equipment, more wax from cappings and less work in handling the crop. Note shallow super always kept up. This will be capped first and can be extracted early. After extracting the shallow supers they are kept off the hive until needed for the fall flow.



FIG. 1 Average colony March 1.

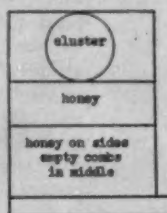


FIG. 2 Arrangement of col. worked through March. Cluster in one body.

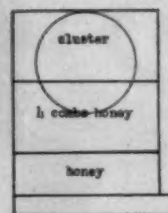


FIG. 3 Arrangement of col. worked through April. Cluster in two bodies.

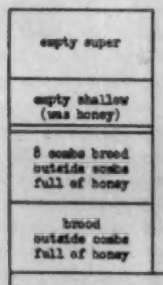


FIG. 4 Arrangement of col. worked thru May. Excluder on. 2nd. story full of brood and honey in outside combs.

excluder

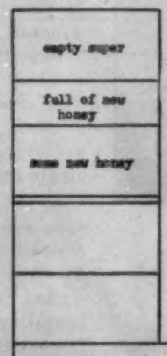


FIG. 5 Honeyflow on. Shallow super raised up and extra empty super on top.

excluder

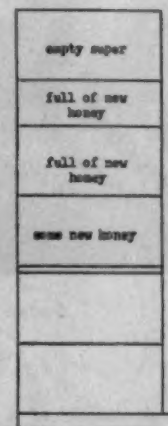


FIG. 6 Supered for 200 lb. crop (8 comb spacing in 10 frame supers).

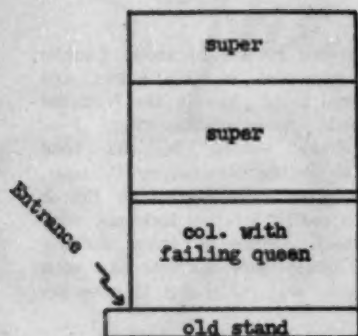


FIG. 7 Colonies that supersede early in flow are divided. Division set back of old stand, (back to back). Old stand makes fair crop while division raises young queen. Unite later.

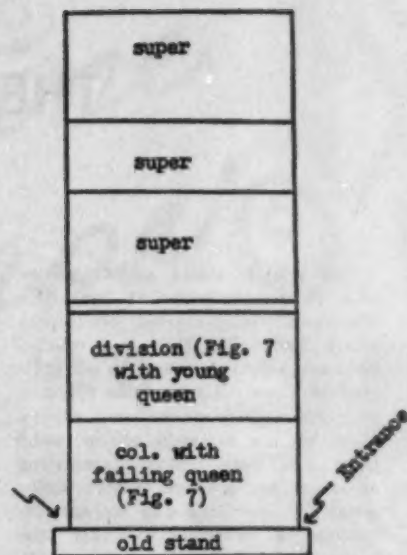
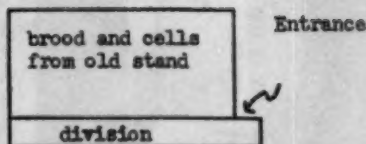


FIG. 8 This is the colony in Fig. 7 after uniting. Field force from the division enter at the rear of the old stand.

By the time fall flow starts, we want the white honey off the hive; then we super again with the shallow super plus supers of idle brood combs. This gives us our feed to be held in the comb for the next year's feeding. We never give more supers than needed for the fall crop as we want to crowd more honey into the brood nest for winter. With good queens and a fall flow to stimulate brood rearing, it is impossible to get enough stores in two-story hives, so we leave one shallow super on each hive for winter.

In these times of high labor costs many like to cut manipulations where possible, then stack on supers. We find the opposite to be true, and our most profitable work is after the flow begins. Following through the main flow, especially with the colonies that supersede at this time, will pay off.

When supering for the main flow we note colonies that slow down on their work in the supers, due to the supersedure of queens. These are divided as in *fig. 7*. Here we hold the field force on the old stand. By confining the old (failing) queen

to one brood body, we still get a fair crop of honey up in the supers where we want it. The division will requeen itself or can be requeened.

Note that the division is set behind old stand, back to back. This is done to facilitate uniting later as in *fig. 8*. Here again we have the full field force of both units at work on the old stand. First hive body on the old stand has been moved ahead to make an entrance at the back for flight from the division. These colonies make up for lost time on the fall flow.

## 1958

The ninety-eighth year of the American Bee Journal. Two more years will be our one hundredth anniversary. So we must step up higher year after year to reach some kind of a bang-up celebration by then. To those of us who have dug and delved for something better for 1958, maybe you'll agree that we have stepped up the whole magazine. There will be a brand new and exciting cover and a cover contest with Pat Diehnelt as Contest Editor. The entire layout of the magazine will be considerably different although the sections for classes of beekeepers will continue. There will be several new pages of pictures, and how-to-do-its. We hope to have some new Consulting Editors, and, as they can be prepared in a worth while manner, we hope to have some regional issues to help readers in those special areas. If Bill Clarke, Jr. doesn't renig he will still head the Beginner section as Editor. Pat will also edit a brand new Puzzle so you fans get braced. Hope you like the new Journal for 1958. We'll take the "covers" off next month. Merry Christmas and a Happy New Year.



# THE HOFMANN STORY

by G. H. CALE

One winter, years ago, I visited with E. L. Hofmann at Janesville, Minnesota, who started beekeeping about 1898. He then had over a thousand colonies of bees in old style Dadant hives. Also regular 6 $\frac{3}{4}$  inch or regular Dadant shallow supers. Most of his methods of operation were like ours. Most interesting of all he had a large modern honey house for operating and storage, including a workshop. Under the house he made a bee cellar with automatic air and temperature controls and it is still a model for bee cellar construction.

He had a son, Charles, not quite grown up but doing so pretty fast. It was winter then and when E. L. took me to the station to catch my train, Charles was pulled along over the snow on foot runners by a long rope. We both still remember that event.

Now Charles has succeeded his father, and is "grewed out of all knowledge." He does not share his father's enthusiasm for large numbers as he is running about 350 colonies. But he also has the family farm and that takes time too. He is nevertheless a good commercial



Charles Hofmann

beekeeper and runs his bees and his farm alone for the most part. That should be a full time job for any one.

Mark Hauck, new owner and editor of the Janesville Argus, became fascinated with the "Hofmann Story"

and wrote an article about Charlie that appeared in the Argus and captured third place in the National Editorial Association's "Best Feature Story" contest in the 1956 Annual Better Newspaper Contests. There were 1728 entries so Editor Hauck really hit the jack pot with his story. Since he knew nothing about honey bees his one day with Hofmann was really put to good account.

To borrow his words, the Hofmann Apiaries is an industry quietly nestled among the trees on Charles Hofmann's farm northwest of Janesville. The building, father E. L. erected, is still the center of operations for the twelve yards located within a 25 mile radius with the home yard right by the building.

Charles likes to save work so he uses a hydraulic lift on his truck bed for loading. Supers are loaded on skids and a small dolly used to move the stacks from the truck to the store room and about the honeyhouse. His only help is Mrs. Lyle Heath who pinch-hits in extracting, and mother Hofmann who usually comes in for a share of the uncapping job.

Charlie likes to distribute his own honey as much as possible and represents the growing number of small producer-distributors that are dotting the country. Such locality distribution is doing much today to tone up markets and keep local distributors supplied with a fine product on which they can rely. Bottling, canning and labeling are done in a shinningly clean basement room. Bulk sales are still made to be sure but the volume of small container sales increases.

Besides his beekeeping operations and his farming, Charles Hofmann has also found time to be an active leader in local and national beekeeping affairs. To our notion he represents the new type of leaders that are bridging the gap between the big-time operators and the small ones and managing to devote some thought and effort to the forward looking movements within the industry.



One of the Hofmann apiaries in old style Dadant hives but with hanging covers.



# The Sideline Beekeeper

These two little English girls are getting a bang out of that beautiful swarm marching into the hive, always a sight to capture anyone's interest. The white cloth brings out the details of the marching horde and likely the girl standing has seen the queen and is pointing her out to her sister. Neither of them has any fear of stings. The hive is an English type on a hive stand.



# Refurnishing Comb Honey Supers

by J. HERBERT FRETZ  
FREEMAN, SOUTH DAKOTA

I am just a back-lot hobby beekeeper. I do not profess to know much about comb honey, but during the past ten years with my 30 hives I have made a few items of equipment for the conventional comb honey super which I find very useful.

I have read and followed Carl E. Killion's methods for the most part and find them excellent. But I have never been convinced that his improved T comb honey super is better than the conventional comb honey

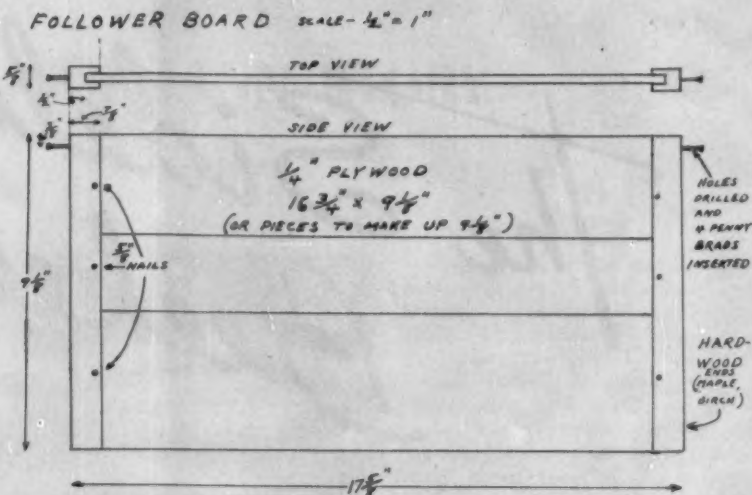


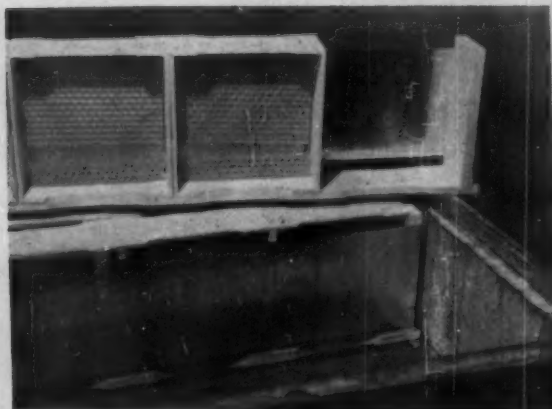
FIGURE 1

super with section holders, if the latter is refurnished with what I consider improved fixtures.

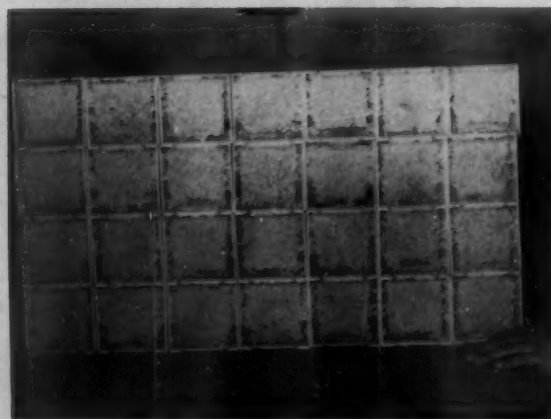
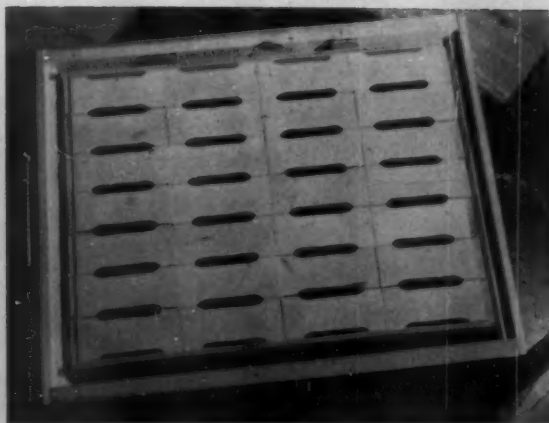
## Follower Board

I make my comb honey over single 10-frame hive bodies as Mr. Killion does but use the conventional Hoffman

self-spacing frame instead of his nail-spaced frame. I have used 10 frames per hive body and the 9-frame body with follower boards on both sides of the hive. I prefer the latter for the reasons which Mr. Killion offers: better ventilation, better insulated brood,



Top, left, section holders with sheet metal separators. Bottom left, assembled sections in comb honey super. Note the air space surrounding the sections on all sides. Bottom right, sections from a super picked at random. All sections are drawn out and filled evenly from one "air conditioned" super.



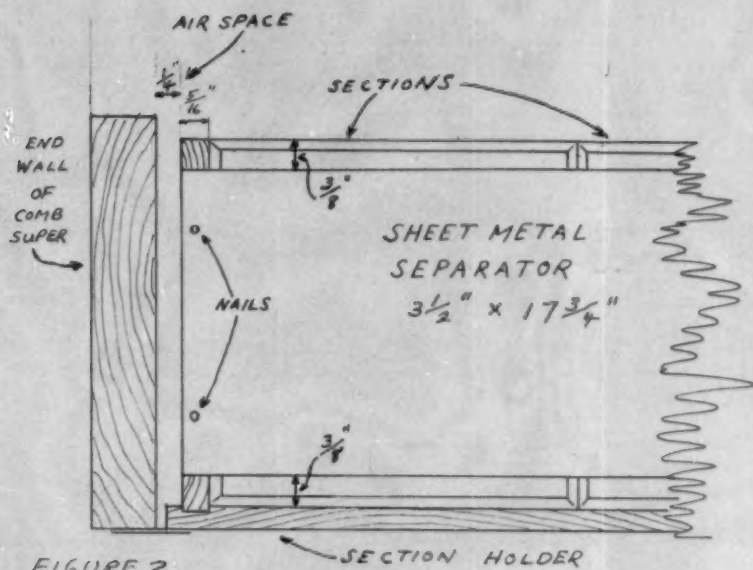


FIGURE 2

easier removal of frames for inspection, but have found, what I consider, a simpler and stronger way of making the follower board. (Mr. Killion's follower board construction is given in the American Bee Journal, June 1954, page 222.) You will note my follower board in Figure 1. The two ends are made of maple or birch for strength and are dadoed so that the 1/4 inch plywood strips can be inserted and nailed. At a nearby woodworking shop one can often pick up numerous odds and ends of plywood cheap, so long as it is the correct length of 16 3/4 inches. Furthermore the plywood can be a very cheap grade for surface blemishes make no difference here. Holes may be drilled at the top of the end pieces and 4 penny finishing nails (1 1/2 inches) inserted upon which the follower board hangs in the hive. The end pieces of the follower board will rest against the frames and allow the correct spacing next to the outside comb. The advantages of this construction are: simplicity, cheapness, less propolis because of nail suspension, ease of mass production.

#### Comb Honey Super

Certain claims made for the Killion improved T super such as "gives bees greater access and encourages them to fill all sections fully," "less travel over the sections," and "easier to place sections in super and remove them," may be so, but I wonder whether the difference is great enough over the conventional section-holder super. The one great advantage, that it is in reality an air-conditioned super with its bee space completely

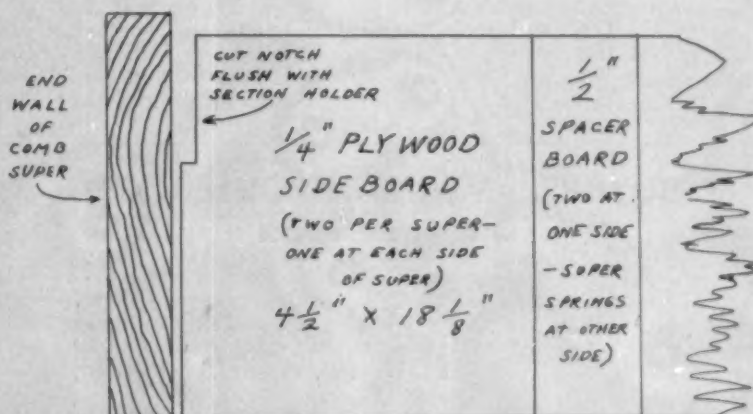


FIGURE 3

surrounding the sections and thus allowing a rim of bees to completely surround the sections, I can see. But I raise this question: If the simpler-constructed conventional super can be made to have this same bee space surrounding the sections on all sides, will there not be the same results? For the past several seasons my experience with my improved conventional super has answered this question in the affirmative. In my supers the bees have had this space and have consistently drawn out and filled the outside sections so that little if any difference could be detected even by trained eyes. Take for instance the one photo of all 28 sections from one super picked at random from the pile of supers last fall. I removed each section and piled them up for this

photo. These are ungraded and all from one super. They are not perfect, but they do show the results of an air-conditioned conventional super. I have allowed an air space of from 1/4 to 1/2 inch around the sections by remaking the ends of the section holders and using thinner metal separators between the section holders.

#### Section Holders and Separators

Figure 2 will show you my section holder and separator. Some bee equipment manufacturers make the section holder for the common 4 1/4 section with this thinner 5/16 inch end which is inserted into the bottom piece of the holder by a slight dado. However, it has been my experience that most companies seem to have done away with this 5/16 end and have come out with the simpler but weaker 9/16 inch end which is simply nailed flush with the end of the bottom piece.

With my bench saw I have cut down these ends and dadoed them as shown in Figure 2. This makes for a stronger joint and allows the 1/4 inch bee space around the sections on the ends of the hive.

To allow an air space at the sides of the super was more difficult with the conventional thin wood separators which are usually about 1/10 inch thick. For some years I used these wood separators and then allowed only six section holders to a super but this left too much space at the sides and the bees would sometimes build comb in this space and mess things up. Seven section holders made a snug fit in the super and allowed no air space at the sides. I never liked the wood separators for they were hard to clean of propolis



and would last only a season or two and then break off at the scallops. I have experimented using heavy gauge sheet metal separators for two seasons and have found them highly successful and in no way harmful to bees or crop. I asked the local tin-smith to cut them  $3\frac{1}{2} \times 17\frac{1}{4}$  inches a piece and I nailed one to six out of the seven section holders in a super, leaving the other side of the section holder open. Even though these are heavy gauge metal they are much thinner and stronger than the old wood separators, with the result that I can place seven section holders with sections in a super and still have room at the sides for two sideboards and an air space.

The advantages of these metal separators over the wood separators are: cannot break or split like the wood ones, do not warp, bees propolize them less, smooth surface is easy and quick to clean, durable for years of service, less parts in super to get lost since they are fastened to section holders, allow the sections to come closer together with less propolis on them, make the section holder stronger

and more compact, allow more bee space at the top and bottom of the separator for bee travel and ventilation. This last point is very important for I feel it encourages the bees to enter the supers sooner.

Another advantage of the section holder super is that split sections may be used. For most of the years I have followed Killion in using the solid section and his multiple block for fastening foundation starters, top and bottom, and I like these best. Lately, I have found, however, that split sections are much faster to install and in normal honeyflows here in southeastern South Dakota make as nice sections as the other. Section holders, furthermore, keep the sections cleaner from propolis and whiter. Once you are accustomed to section-holder supers, sections can be removed, handled, or rearranged for finishing as easily as with the T super.

#### Sideboards

As stated before, I nail these metal separators to every section holder except one, for at the sides of the seven section holders I use two  $\frac{1}{4}$  inch ply-

wood sideboards each measuring  $4\frac{1}{2} \times 18\frac{1}{4}$  inches. I cut notches in the top of these boards so that end stops may be used to line up the section holders and these sideboards. I do not leave these end stops in the super, so that the bees can move around in this space. Figure 3 shows you these sideboards and also the  $\frac{1}{2}$  inch spacer blocks I use. On one side I use two spacer blocks and on the other side I use two super springs. This makes a compact assembly inside the super and allows about  $\frac{1}{2}$  inch bee space on the sides of the super. The thinner metal separators allow this extra space.

I have developed my own variation of Killion's management of comb honey colonies, but that would be another article.

With my system of management and with the above improvements in the conventional comb honey super, I have obtained fair crops in this sweet clover country of southeastern South Dakota. But I am always looking for better ways to improve my crops, management and equipment.

## BUYING AMERICAN FOULBROOD

by CHARLES W. LINDSEY

Bill bought some bees advertised for sale because the owner was moving away. They looked to be in pretty good shape and the price seemed right. They had been inspected the fall before but the county inspector had not been around that spring. Bill had seen American foulbrood before so he thought it was safe to take these bees on his own inspection. He looked through every colony thoroughly and found no sign of disease.

About a month later the new tenant stopped Bill to ask why he had not taken all the bee stuff. He had found a box of equipment in a shed and he did not like the smell of it and he wished Bill would come and get it. He did, twenty frames with fully drawn combs. He called me to see them and they were surely full of the remains of disease. The seller evidently knew about it so, when he found some of his colonies had disease, he took out all the combs that showed any signs of it and replaced them with combs he had extracted the fall before. He may have doubled up a few of them as Bill said they were quite strong for that time of year.

Then we inspected Bill's bees again. Five of the sixteen showed American foulbrood. Shaking was legal in Colorado then and sulfa was unknown to us. We called the inspector and he gave us permission to shake if we wanted to. I don't like shaking as there is too much chance of scattering diseased honey, so we proposed to use acid boards to get the bees out the same as is done in taking off honey. While we had the hives open for inspection we killed the queens. We decided to make two good colonies from the five so we prepared two hive bodies with foundation, without bottom boards, and got a couple of caged queens to hang in them.

Then we placed the two strongest colonies facing each other with one of the two prepared hives between them and put a small rock under each corner so the bees could run in from all sides. We smoked the colonies heavily and put well soaked acid boards on them. I used more acid than I do for taking off honey as I wanted the bees to move quickly and we did not care if the honey was tainted. The other three diseased colonies were placed around

the remaining prepared body and the bees chased out the same way.

When most of the bees had left the diseased hives we poured kerosene in on the top bars and between the frames without removing them. We may have used a quart to the hive. The inspector closed them up tightly and hauled them to his tight storage house. During the winter he rendered the summer's accumulation of diseased combs and sterilized the hives. No attempt was made to save any frames. They were burned in the furnace that heated the wax melter. He gave back a clean hive for every one he took.

He said that he had used kerosene to kill diseased colonies for years. It did the work and was not dangerous like cyanide. It also kept out wax moths. The kerosene melts the wax to a pasty mass but does not destroy it and the kerosene boils out in rendering. I expect Diesel fuel would be as good but I have never tried it.

Bill had two strong colonies left and no disease showed up in them. So his net loss was three. Since the seller had moved from the state, Bill had no recourse; the loss was all his.

Sebastopol, California

American Bee Journal



# Plant Breeding for the Amateur

by DONALD C. CHANDLER

Professional plant breeders are doing an outstanding work. Without them we would not now be enjoying the worthwhile new varieties in various plants. Well done, plant breeders. May your lives be long and your better originations many. One does not need to be a professional plant breeder in order to originate new and better plants.

Any of us who acquire the spark or the desire can make crosses, harvest the seed from the cross, plant it and so grow our own originations. Making the cross is usually an easy operation, done by transferring the pollen of one plant to the stigma of another. Truly it is as simple as this. As one becomes intrigued with his first crosses the next and more advanced steps will follow.

It might be logical for folks enthused about bees to start their plant breeding with flowers. In the book *American Honey Plants*, page 81, the author Frank C. Pellett in writing about Buffalo-Berry (*Shepherdia argentea*) among other things says, "Since it withstands both cold and drought it offers special opportunity to the plant breeder who will devote the time necessary to its improvement. It is one of the first honey plants to bloom in the spring and is valuable for early stimulation in the Dakotas and Minnesota." Gray lists two, the above and Canadian Buffalo-Berry (*S. canadensis*). Britton and Brown list three, the third being *S. or L. rotundifolia* of Utah. What about Silverberry (*Elaeagnus argentea*) Pursh, is it closely related?

What do you suggest as a cross for Buffalo-Berry? If you have ideas let us all know. Perhaps we will yet have a *Shepherdia* Society or a *Honey Plant Society*.

## Colonies in Italy

According to Zappi-Recordati (*Irish Bee Journal*) in 1953 of some 600,000 colonies of bees in Italy, 187,000 colonies were in skeps or other fixed comb hives. The Dadant-Blatt (Modified Dadant) hive is the most widely distributed of the movable comb hives. For the most part, apiaries are in permanent locations though there is some migration in Sicily, Sardinia and other parts.



Ronnie pointing his hive.

## Father and Son

by ROBERT KINNERSLEY

If you had told me a year ago that I would be a beekeeper I would probably have looked at you and laughed. I never thought much about bees. If I did I always gave them a wide clearance.

However, a friend visited us and was so enthused about his bees that I caught the fever. To him the bees had been a wonderful hobby and he thought a profitable one. He kept at it with one incident then another until I had an order made out for two hives before he left.

My ten year old son got interested too. He found a book at school about bees. He made his own bee veil. Then he wanted to buy one swarm of bees and have those his bees and the honey they made would be his.

So that was the way we started. One hive was mine, one was Ronnie's. Yes, you guessed it. Ronnie's bees made twice as much honey as mine the first year.

It has been very fascinating. We have enjoyed learning about bees together. We also all enjoy eating our own honey you can be sure.

## Which Colonies Have Cells?

In swarming and superseding season, Earl Robinson, Oelwein, Iowa, has found that if you quietly let smoke from the smoker drift by the hive entrance, the colonies with cells tend to resent the smoke and so may be found to be the ones with cells.

## Package Bees

John E. Geiger and J.C.M.L./Arrive of the Brandon (Manitoba) Experimental Farm are co-authors of this 20 page bulletin on *Package Bees and Their Care*. The phases go from purchase and installation to harvesting of the crop. Over 90 per cent of the colonies in the Western Provinces of Canada are package bees which produce an average of 100 pounds of honey. Usually colonies are destroyed in the fall and again rebuilt with packages in spring. Potential market for some 135,000 packages.

## Nosema Tests In England

L. Bailey of the Rothamsted Station in England is continuing his work on *Nosema* disease according to C. G. Butler in the "*British Bee Journal*." Original infection of colonies has apparently been almost dwindled to extinction by the fumigation of the colonies' combs with the vapor of acetic acid. Experiments are now being conducted to determine whether infection can be eliminated from colonies by acetic fumigation in spring of all combs except those containing brood, and returning them directly to the colonies. This would avoid the complete transferring of colonies onto already fumigated combs.

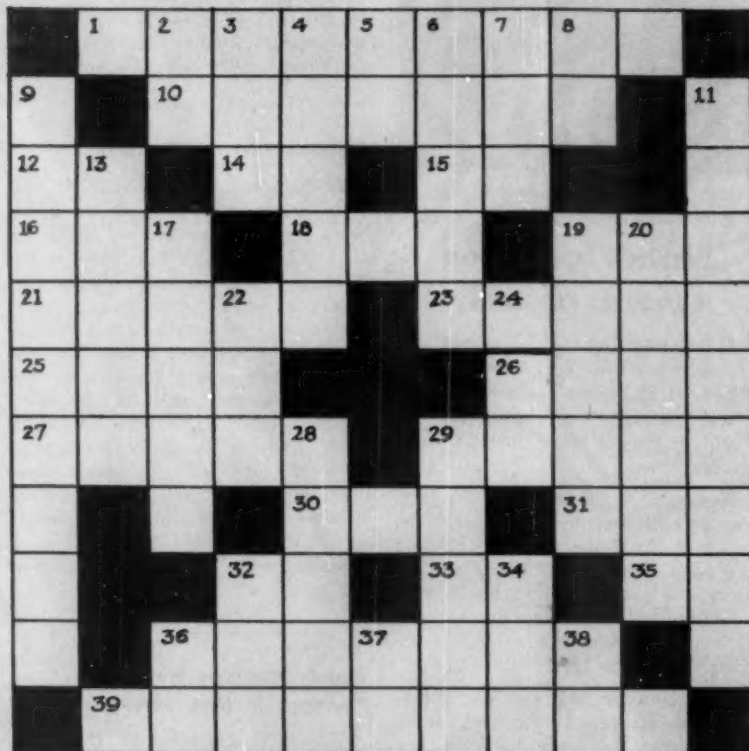
## Woody Roadside Honey Plantings In New Jersey

Walter C. Morrison of the N. J. Roadside Planting Commission is the author of a 24 page circular entitled as above. While not all of the plants recommended are entirely from a honey producing standpoint, yet they all would enhance to some extent the nectar possibilities of the region as well as many similar situations.

Some of the plants recommended for roadside planting are, crab apples, mountain ash, basswood, buttonbush, devil's-walking-stick, dogwood, boxelder, hawthorns, holly, locusts, red maple, ninebark, sweet pepper bush, pinkster flower, silver poplar, tulip poplar, privets, quince and many others. There is an explanation of characteristics of each with planting suggestions. Available as Circular 403 of the New Jersey Department of Agriculture at Trenton.

## PAT'S PUZZLER

Here we go again, back in the direction of the "old days" when contestants came in so fast we could not keep up with them. February was tops with 153 answers. November (last issue) brought 119 answers from 35 states. Have sympathy with our subscription department while they process these extensions. Here is the last Puzzle. Don't weep however, Pat has a brand new idea for 1958 and you can't get it out of us with crowbars. Just hold the horses and wait for the gong. You may even like it better than the puzzles. Now try your final wits on the December Puzzle below.

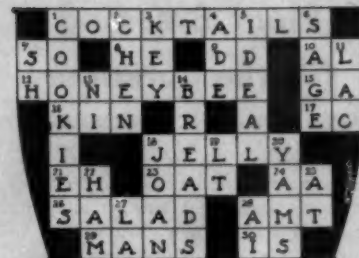


### ACROSS

1. Enzyme in sucrose conversion
10. Quick bread
12. Egyptian sun god
14. Selenium (Chem.)
15. Mother
16. Gold (Spanish)
18. Girl's name
19. Insect
21. Beautiful
23. Hesitate
25. Hebrew measure
26. Mile (Po.)
27. Saline
29. Race of bees
30. Egg cells
31. Often
32. Va. Gov. Yeardley (Initials)
33. Young people (Abbr.)
35. Exclamation
36. Deface
39. Disease of bees

### DOWN

2. Notary Public (Abbr.)
3. \_\_\_\_\_ deferens
4. Foe
5. Roman Catholic (Abbr.)
6. Domesticated
7. Woody vine
8. Tone on chromatic scale
9. Tube for sucking nectar
11. Equipment for removing honey from comb
13. Fragrance
17. Only
19. Acids containing nitrogen
20. Neutralize
22. National Recovery Administration (Abbr.)
24. Electromagnetic unit (Abbr.)
28. \_\_\_\_\_ jelly
29. Payer
32. Antelope
34. An aye
36. Two vowels
37. Decibel (Abbr.)
38. Negative



### November Results

So easy, like eating apple pie! Why even your editor did it (ha!) Most answers said definitely that they were stumped by some of the last puzzles. They just could not do them. Some real close runs this time, too. For instance here are three answers from Iowa, all mailed on November 9th, one at 3 p.m. (with a wrong answer), one at 4 p.m. and one at 6 p.m. Comments—"We didn't send October as we got stuck on victor fish and honey eating parrot." (See what we mean?) from Gertrude and Rodney E. Monk, Groton, Mass. This time the Monks won. "My wife and I have enjoyed your puzzles and have tried to work each of them. Some of them were stumpers but we had lots of fun trying. Keep up this interesting feature." Milton Spilker, Shelbyville, Missouri. The Spilkers won this time also. So, you folks watch for Pat's new "sticker."

### Winners for November

Alabama—Blaine Dickman, Bay Minette  
 Alberta—L. R. Emes, Beaverlodge  
 California—Mrs. Virginia Everson, Fillmore  
 Colorado—L. E. Mills, Greeley  
 Florida—H. H. Grant, Wauchula  
 Georgia—Frank M. Cantrell, Atlanta  
 Illinois—M. Sgt. Joseph F. Brown, Chanute Field  
 Indiana—Charles R. Davis, Herbst  
 Iowa—Emil Hildebrandt, Clinton  
 Kansas—Irvin C. Day, Newton  
 Kentucky—Earl Jones, Bark Camp  
 Maine—Donald N. Herring, Dover-Foxcroft  
 Maryland—Joseph F. Latham, Patomac Heights  
 Massachusetts—Gertrude H. and Rodney E. Monk, Groton  
 Michigan—Ted Peterson, White Cloud  
 Minnesota—Elmer E. Vikla, Lonsdale  
 Mississippi—Jay G. Sauls, Tylertown  
 Missouri—Milton Spilker, Shelbyville  
 Nebraska—Dr. C. B. Schwab, Fairbury  
 New Jersey—R. Berthold, Jr., Paterson  
 New York—William Dahlstrom and Vanda Dressig, Wellsville  
 North Carolina—R. F. Tharp, Brevard  
 Ohio—Mrs. Bettie Neff, Ansonia  
 Ontario—Gerald McConnell, Shelburne  
 Pennsylvania—W. K. Bigger, Trout Run  
 South Carolina—Eugene Charles, Seneca  
 South Dakota—Mrs. Bernt Sundvold, Hudson  
 Tennessee—John A. Phillip, Memphis  
 Texas—Robert Taylor, Texarkana  
 Utah—Jesse M. Broadbent, Provo  
 Virginia—Dudley W. Kinser, Leesburg  
 Washington—J. G. Pister, Jr., Wapato  
 West Virginia—G. D. McKeever, Buckeye  
 Wisconsin—Carl G. Rhapstock, Plainfield  
 Wyoming—Everett Spackman, Cheyenne

# The Beginner and His Bees

Most beginners did not live in the earlier days when white Dutch clover was one of the main honey sources. Some honey was obtained from it every year and every five to ten years big crops were due to this fine honey plant. Sweet clover then moved into first place. Now it too is receding. In the best white Dutch years carpets of snowy blossoms decked fields in all directions and their wonderful odor dominated the landscape. White Dutch honey was the standard by which all other honey was measured. We still have white Dutch but it blends in with alsike, alfalfa, and yellow and white sweet, a good blend; hard to beat. But the pure white Dutch days are almost a memory.





# The Beginner and His Bees

## The Beginner's Problems

by W. W. CLARKE, JR.



Whatever excites the beginner to start with bees the approach to first steps is concerned with overcoming the fear of being stung. Added to this fear is apprehension about the effect of bee stings on the person. Will there be any serious effect from being stung?

Fear of stings can only be conquered when stings are received. If any large proportion of the bees in a colony actually stung the beekeeper no one could keep bees. However, when conditions which do not favor stinging are observed, only a few bees will sting. Bees are more inclined to sting when weather is unfavorable, when it is cold or windy, or when the operator is careless and makes quick movements, jars the colony, kills bees in handling them, or when the bees themselves are disturbed by other bees, as in robbing. Quick nervous motions excite the bees so handle the bees slowly and carefully and avoid killing them. Work only when it is pleasant and sunny and do not keep hives open when robbing is easy to start. Complete colony examinations may be done successfully when the bees are bringing in nectar in flow time.

Clothes enter the picture too. Clothes should be light colored and clean. Bees resent sweaty, dirty clothes and since they can more readily see dark cloth such material should not be worn when handling bees. White is ideal.

The beginner who thoroughly understands these simple precautions will soon lose all fear of bee stings. If he is allergic to them he will quickly find out and so may have to give up the idea of keeping bees. Some people are so allergic that a single bee sting will cause them to swell all

over the body and the effect of the sting will interfere with breathing and if this goes on it is simply good sense to keep away from bees and beekeeping.

The second step for the beginner is to understand seasonal operations, the things to do and when to do them, along with that, avoiding unnecessary disturbance to the colonies. Most beginners want to see the colonies frequently, open them, examine them, and learn about the habits of bees, the progress of the brood and the population, none of which do any particular harm and are a useful part of the beekeeper's education but they are not basic management.

The things to do during a season with bees are simple and can be done with a little time. Starting with spring, bees must have an abundance of honey to carry on colony growth, brood rearing, and egg laying. Each colony should have at least 15 or 20 pounds of stores in reserve all the time up to the beginning of the honeyflows. If they do not have enough food, they can be given sugar sirup, half sugar, half water, in a five or ten pound pail with two nail holes in the center of the lid and put over the tops of the combs, surrounded by an empty super or hive body. Do this feeding as often as necessary until the beginning of the honeyflow. Even in extreme cases the addition of food in the form of sirup will not have to be done over 3 or 4 times provided the colonies the previous fall had an abundance of natural stores and pollen. Usually this feed period is during the month before the beginning of the honeyflow rather than earlier. Bees which have to be fed earlier simply were not taken care of properly, the season before.

The colony should have enough comb space for all the activities in storing pollen, new honey, and for brood rearing. Many beekeepers make the mistake of not supplying sufficient room for this purpose. Sometimes two or three bodies of drawn combs (with some foundation if necessary) are needed by each colony from the beginning of brood rearing in spring until the beginning of the honeyflow in early summer.

These should be good combs. The best combs are drawn from full sheets of wired foundation and if possible the combs should be drawn out above the brood nest of the colony or between the supers in a honeyflow the previous season and then the combs will be as nearly perfect as it is possible to get them.

Another mistake commonly made, particularly by beginners, is in not providing the bees with sufficient room for the storage of nectar and honey during a honeyflow, especially in the early part of the honeyflow when it is at its best. Too often additional room for honey storage is given

Bill Clarke, Jr. - Our genial and helpful Editor of the Beginner Department sent in his last contribution for the present year with the November number. We do want him to stay at the post and at present we are trying to plan a different kind of Beginner Department to broaden its scope. Maybe we can work something out that will be interesting enough to keep Bill on the job. As Extension Apiarist for the Pennsylvania State University he knows all the "Joes and Jills" among the state's beekeepers and understands their problems. To boot he is himself a sizable sideline beekeeper.



after the flow has begun to wane. To gather, store and ripen one hundred pounds of honey a colony needs at least three full depth supers or four shallow supers. Supers should be added to the colony before the flow as soon as the combs at the top of the brood nest are being whitened with new wax. When one super is about half full a second one should be given. In comb honey production the manipulation of supers is more difficult. It must be done very carefully and wisely to avoid ending the honeyflow with a lot of cull sections or unfinished sections.

However, the production of comb honey is really not advisable for those who are just beginning with bees. It is a very skilled job and takes a lot

of experience and understanding. Beginners can successfully produce bulk comb honey for later packing in glass or otherwise with shallow supers with lots less attention to details. To produce section comb honey, one must practically live with the bees and understand perfectly just what he is doing and just how to do it.

There is one thing, however, which should be understood well by the young beekeeper and that is to make sure in the fall that every colony is left with enough honey to winter and this does not mean 25 or 30 pounds; it means 75 to 100 pounds. Whether or not the bees for winter are to be packed or not is a matter of location.

There remains one problem which we have purposely left for the last

and that is swarming. Beekeepers are afraid of swarming, because it divides the colony and robs them of a honey crop particularly when the swarms go away. There is no room here to discuss this problem. Read any good text book about beekeeping and you will understand the fundamentals back of swarming and what to do about swarming so you will have very little swarming and when you do you will be able to handle the swarms without losing your crop.

Bees vary in honey production. Today with genetically controlled hybrid stock of high producing power the honey crop can be increased above the averages which were previously possible. This stock is very necessary for high production.

## OUR COVER PICTURE



Marilee Ammer, winner of scholarship awarded by California Honey Advisory Board.

Miss Marilee Ammer, a junior in Humboldt State College in Arcata, California, majoring in Home Economics (see the cover picture and the one on this page) was this year awarded the new \$500 scholarship of the California Honey Advisory Board of San Marino, Cal. Mrs. Thelma Littlefield, Vice President of the Women's Auxiliary of the American Beekeeping Federation, and Mrs. Mona Schafer, Manager of the California Honey Advisory Board, presented Miss Ammer with her scholarship at a home economics tea. The dean of students, the home economics faculty, the home economics teachers in Eureka and Arcata and college students were present.

The scholarship was the first one ever to be given by the Advisory Board, a non-profit organization operating under the Bureau of Markets of the Department of Agriculture. Marilee was also chosen as California's Honey Queen and the Advisory Board will use her services for statewide honey promotion as her home economics interest lies in the field of advertising, promotion, recipe creation and honey cookery.

Miss Ammer is nineteen and a third generation Californian, born in Eureka. Her minor is business administration. She is President of the college Home Economics Club and Social Chairman of Associated Women Students. Her maternal grandfather, Bert E. Pasco of Eureka, was one of the original organizers of 4-H Clubs in the state and was their first state president. Today Marilee's grandmother, mother and father are currently interested in 4-H Clubs.

In her letter of appreciation to Mark St. John, Chairman of the Advisory Board, she says "This scholarship is certainly an honor and it has made it possible for me to continue my college studies in home economics. Having Mrs. Schafer and Mrs. Littlefield present the award and explain the work and the importance of the honey industry in California gave me a clearer understanding of the value of honey as a food. I have been trying various recipes with honey, the latest being uncooked applesauce. I used it as an appetizer with ham and we enjoyed it very much. I then baked a cake using a cup of this applesauce

and I feel that it gave a wonderful flavor to the cake."

### Deborah Grown Up

In November, Deborah Bowman graced the cover, daughter of Lee Bowman of Hilliards, Ohio. Actually Deborah is four years older than she was when the November cover picture was taken. She is now 10 and in the 5th grade. She is the biggest honey eater of the family and when five growing kids all eat honey they can stow away gobs of it. The cover picture of Deborah in November was also used for the cover in August 1953. And right here is Deborah today, apple conscious right now. Shake that tree, girl, and make some of Marilee's uncooked applesauce (See the story of the December cover above.)



Our November Deborah Bowman has grown up.



## PETRO PROKOPOVICH—

### A UKRAINIAN BEEKEEPER, TEACHER, AND SCIENTIST<sup>1</sup>

by MYKOLA H. HAYDAK

Department of Entomology and Economic Zoology  
Institute of Agriculture, St. Paul 1, Minnesota

At the time when the American colonies were striving for their independence from Britain, indeed, only two weeks after George Washington was appointed by the Second Continental Congress as Commander-in-Chief of the American Continental Armies; in another part of the world, in far away Ukraine, a child was born who was to become a man destined to revolutionize beekeeping throughout all Europe. This man was Petro Prokopovich. Born June 29, 1775, in the village of Michenky, the son of a Ukrainian clergyman, descendant of an old Kozak family, he was to become a pioneer in modern beekeeping.

After graduating from the Mohylan Academy, the contemporary Ukrainian University at Kiev, he embarked on a military career as an officer in the old Czar's guard. A brilliant military future was opening for him. However, for reasons unknown to us, he quit his military service, returned to his native village and started studying bee life, not from books but from his own observations and experiments. This we know from his letter which he, in 1827, wrote to an editor while sending his first article for publication: "In the course of my twenty-eight years' long work with bees I was successful in discovering the main facts about the bee life which were never explained by others. On the basis of this knowledge I established an entirely new method of beekeeping and invented a new hive which is best for our climate and my method of beekeeping. I am extremely happy that I did not read any beekeeping book before, not only foreign but also Russian. All my knowledge came to me from continuous observations on bees and repeated experiments. After working with bees for eight years,

when I reached a complete understanding of the bee life and wrote already my own book on beekeeping, I ordered (because finally I could afford this) several books on beekeeping such as that of Pastorov, Schirach, Christ, Frederique, Desormes and I read many articles on beekeeping in bee journals. In all these books I did not find an understanding of the main natural bases upon which the well being of bees is based . . . and therefore artificial methods of those authors are either uncertain or unsatisfactory or even useless." This letter and many articles he wrote on the subject of beekeeping are really characterizing Prokopovich as a man of unusual ability of observation.

At the time he wrote this letter to the editor, Prokopovich was teaching in the school of beekeeping which he established himself just a year before—in 1826.

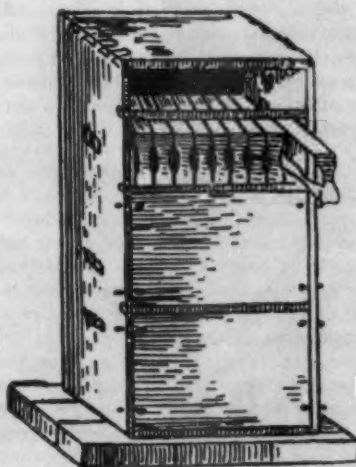
The fact that he started a beekeeping school as soon as he felt he understood the life of bees and had tested his methods of bee management, gives us a hint of why Prokopovich quit



his military career and turned to beekeeping. One must remember that at that time beekeeping was one of the important agricultural occupations. Honey, wax and their products were frequent articles of internal and external trade. At that time, however, the Ukrainian people were oppressed and impoverished by the Russian nobility and actually were serfs. By establishing his school Prokopovich, who loved his native Ukraine, tried to bring up the economic level of his oppressed land and thus give the people the feeling of independence.

The chief object of instruction at the school was rational beekeeping and the course lasted for two years. In the first year of the school Prokopovich had twenty pupils. However, very shortly the school became so famous that it was impossible to take care of all those who wanted to be enrolled. Not only Ukrainians, but Russians, Poles, Czechs, Germans and Italians attended the school (Prokopovich knew six languages). Because sons of workers and peasants were predominant in the school, Prokopovich made many enemies who fought him because he taught the people of the lower classes. But Prokopovich knew how to defend himself. He said that the truly low people were those who did nothing.

At the school students were taught the biology of bees, the economics of beekeeping, cultivation of honey plants, management of commercial



Prokopovich hive, a box with division boards. The combs have lath supports. The hive was also provided with a crude queen excluder.

<sup>1</sup> Paper No. 941 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

apiaries, bee diseases and their control, experiments in beekeeping and other phases of apiculture. Unfortunately the inspiring lectures of Prokopovich were never published. He spoke in Ukrainian and tried to publish his lectures himself. For that reason he finally got permission to print a beekeeping journal at the school. However, when the first number of the journal was ready for printing the police, in the typical Russian way which has not changed up to the present, confiscated everything and prohibited printing, suggesting that Prokopovich should write for the Russian journals. Although Prokopovich wrote a great number of the articles for the journals, his lectures were never published. He wrote them in Ukrainian. It was difficult for him to translate all of his lectures in Russian because he was very busy and there was scarcity of beekeeping terminology in the Russian language at the time.

In his apiaries, in which the number of colonies was said to be reaching at times as many as 10,000, Prokopovich kept bees in the hives which he himself invented around 1806.

The hive was three feet, six inches tall, 20 to 22 inches wide and 12 to 16 inches deep. It was divided into three compartments. For the honey crop the top compartment was separated from the rest of the hive by a wooden queen excluder, which was also an invention of Prokopovich. In this compartment special frames were placed before the honeyflow. The frames were 12 to 16 inches long, 6 to 8 inches high. The width of these frames was not more than 1½ inches. There were excisions on the side bars facing the door and in the lower bars, similar to those in our bee-way sections. This was done with the intention of providing a passage for bees from one part of the hive to another and to allow observations. There was always a little play between the frames. This was done for a greater convenience in handling the frames. A small strip of dry comb was fastened to the top bar of each frame serving as a guide. Discovering an empty space above the brood nest, bees started working there at once and the desired kind of honey was obtained. Such combs, filled with honey were very popular and tens of thousands of them were shipped to distant markets without injury.

Besides the theoretical studies, each pupil was assigned an apiary where he had to do all the work and planning for a successful production.

Workshops for making hives and other utensils were present at the school. There were also large plantations of honey producing plants, especially *Echium vulgare*, the blue weed—"The king of the honey plants," as Prokopovich used to call it.

Prokopovich considered the cultivation of nectar-producing plants of a great importance, and he taught his pupils to establish such plantations in every place they might be active, because this work is useful not only for beekeeping, but for agriculture in general.

Prokopovich kept very complete apiary records; and in the school pupils were taught how to note quickly the condition of each colony. For these purposes he used a so called "Hramota," which included twenty-two notes; by their combinations it was possible to show the various conditions in the colony. The advantages of such notes were that they occupied little space and gave an in-

structive view of what happened in the colony. They were accessible to beekeepers who did not know how to write.

After the death of Prokopovich in 1850, his son, Velykdan, continued the school, teaching the methods of his father. After Velykdan's death (1879) the school was closed, and the property sold. The Russian Government was satisfied with its end, for besides beekeeping, the school kept alive in its pupils the love of their oppressed Ukraine.

The teaching of Prokopovich made a tremendous impact on the development of beekeeping in Russia, Poland, Germany, France and other European countries. Five hundred and sixty-six pupils graduated as instructors of beekeeping during the existence of the school, several of them being from foreign lands. The beekeeping school of Prokopovich was the first and only one in Europe, perhaps in the whole world. It is still unique.

## NOTES FROM ISRAEL

I have been reading ABJ for a number of years and it has been a great help to me in my work (which is also my hobby). I have raised my son Chaim, now 5½ years old, to have the same fondness for bees that I have. He is interested in them, especially when they are on the flowers. As the bees gather nectar and pollen he explains to his friends in kindergarten that they shouldn't cut the flowers until the bees get the nectar so we can have honey.

The apiary I work with has only 50 colonies. I plan to enlarge it and change the local bees to Italian. This is a serious problem in Israel and

all beekeepers who have a chance to change their bees are doing so because the local bees do not gather enough in comparison with the Italians. Last year conditions were favorable and I managed to get four crops. The greatest amount of honey and the tastiest came from clover.

In the six years I have been working with bees there has been no serious disease problem to diminish my crop. Two years ago there was an attack by wasps but there has been nothing serious since.

Yacob Bizak  
Israel



Chaim and his father in their bee yard.



## Possible Use of Microorganisms in Synthetic Bee Bread Production

by HOMER LEN FOOTE,

Assistant District Entomologist, Yuma, Arizona

The need for effective and economical substitutes for pollen and bee bread is becoming increasingly more apparent and urgent in the field of commercial beekeeping. We are realizing more and more the importance of adequate pollen stores in building up and sustaining stronger colony populations, which in turn make greater honey crops possible. Every effort is being made at the present time to more accurately determine the nature and composition of both pollen and bee bread in order to produce effective and economical substitutes that could be used in a practical manner on a large scale commercial basis. We now have formulas that show promise of being effective substitutes for fresh pollen; but, as yet, there is no formula that promises to take the place of bee bread in the diet of the colony.

Pollen is necessary for the continuance of the life of the colony, as it provides the protein portion of the diet of the honey bee. Both adult and larval honey bees can survive on a purely carbohydrate diet for a while; but neither can grow and develop normally with protein, all of which, except perhaps for the trace amounts present in some nectars, is derived from pollen. If adult honey bees are confined and fed only sugar syrup they will live for some time, even building comb if necessary, *but they will rear no brood*. On the other hand, while a colony of honey bees cannot produce brood without pollen, the adult bees themselves are unable to live on pollen alone, as they will soon starve to death when their honey stores are gone even though there may be an abundance of pollen in the combs.

Pollen famine, or the absence of fresh pollen in the field, is usually not so apparent as the more familiar and obvious nectar famine. A colony of honey bees can be "pollen starved" for some time before the beekeeper realizes what is actually occurring. *Often, evidently much too often, the bees experience a somewhat serious pollen famine without the beekeeper being aware of what is happening*; whereas, in the case of a shortage of honey stores and an absence of nectar



The author is better known to beekeepers in Arizona as a Deputy Apiary Inspector, as he had served in that capacity since 1949, before accepting his present assignment as Assistant District Entomologist in the Yuma area. He has bees of his own, being a sideline beekeeper, and holds a Bachelor's Degree in Entomology.  
August 24, 1957

in the field, the same beekeeper would be well-aware of the situation and certainly would see to it that the shortage is remedied as promptly as possible because of economic necessity. *It is just as important that a colony's pollen stores be ample, especially during critical periods when it is important for the brood-rearing activities of the colony to be stepped up to meet the challenge of an important honeyflow.*

### Bee Bread More Than Stored Pollen

We now realize the pollen stores generally referred to as "bee bread" are not simply "stored pollen," just as certainly as honey is not merely "stored nectar." Honey is a food product produced from nectar by honey bees. Likewise, bee bread is a food product produced by honey bees. It is a highly nutritious and most necessary food product in the colony economy resulting from the manner in which the pollen is

"stored" by the bees. It might be well to pause and consider the results of some recent work on pollen substitutes to bear this point out.

It has been experimentally determined that a pollen substitute, consisting of a mixture of soybean flour and dried brewer's yeast, was twice (2x) as efficient in the production of bees as was a pollen substitute having one year old pollen from pollen traps mixed with soybean flour in the same proportions as in the pollen substitute first mentioned. (Haydak 1957). According to the same author, further experiments have shown bee bread to be about nine times (9x) as efficient as the pollen substitute previously mentioned. *It is quite obvious that bee bread is more than stored pollen.*

That bee bread is more than stored pollen is further supported by numerous observations reported in the literature. Casteel (1912) reported that bee bread contains more reducing sugars than pollen from the same plant species. Avetisian (1935) reported that bee bread made from birch pollen contains nearly six times (6x) as much lactic acid as hand-collected birch pollen. (Lactic acid is one of the better known products of bacterial fermentation.) Haydak and Vivino (1950) found that bee bread contains vitamin K, whereas trapped pollen does not. Hitchcock (1956) reported that bee bread from combs contains a milk-digesting enzyme, while pollen from bees' legs does not, indicating that pollen undergoes a definite change within the hive. It is interesting to note also that Beutler and Opfinger (1949) observed that caged bees fed bee bread lived longer than those fed hand-collected pollen, even though both were consumed in equal amounts by the bees.

A pollen famine results in a shortage of pollen stores, or properly aged bee bread. Bees will readily accept and apparently make good use of pollen supplements in the absence of fresh pollen in the field long before their bee bread supply begins to get dangerously low. These supplements are then stored in much the same manner as is pollen. Bees will also accept or even go out and



forage for various other materials in an effort to maintain their bee bread supply. However, once their pollen stores become depleted, that is, the supply of adequately aged bee bread is gone, the situation becomes quite another matter; and the shortage is not easily corrected. The bees will then accept "pollen substitutes" even more readily than before and seem to be somewhat stimulated by them. However, once the colony balance is lost, it is not easily regained and the new bees seem to have less vigor than when the bee bread supply has been maintained.

A similar difficulty seems to be encountered when the bees are forced, usually after a period of extended pollen famine, to use new pollen entirely in the absence of properly aged bee bread. Evidently, fresh pollen cannot take the place of adequately aged bee bread in the diet of the colony, and increased colony populations cannot long be sustained on fresh pollen alone without a definite decrease in brood-rearing activities, a noticeable decrease in vigor of the adult bees and finally a serious slump.

Suppose the beekeeper becomes aware of a pollen famine or a shortage of pollen stores. The problem then becomes, how to remedy the situation. If the beekeeper is aware of pollen productivity in the area, he can usually forecast pollen famines and feed supplements long before the bee bread supply becomes dangerously low. However, if there is a shortage of bee bread, the problem becomes more critical and urgent, and the solution more difficult. Of course, if combs of bee bread have been collected and saved for such occasion, the solution is made less difficult, as these can be given. This is not always possible or practical. Trapped and dried pollen given at such times has less value than some of the more recently developed pollen substitute formulas.

#### Pollen Substitute Research

Pollen starved honey bees will accept and even gather and store a great number of materials and substances, both organic and inorganic, plant and animal, living and dead, in an effort to counteract any shortage of fresh pollen they experience. It is common knowledge that in the absence of natural pollen bees will collect and make use of the flours or meals of various grains or seeds, often causing much annoyance to livestock in these foraging activities.

These "natural pollen substitutes"

include rye meal, cottonseed meal, wheat flour, oatmeal, soybean flour, and others. They have also been reported to collect fine particles of sawdust, coal dust, certain types of black earth or possibly humus, the spores of certain fungi, and even tiny living embryo cheese mites, which are sometimes quite abundant in and around cheese plants.

A knowledge of the fact that honey bees will seek out and apparently use other materials seemingly in place of pollen in the colony diet gave rise to a trial and error search for a pollen substitute. Rye meal seemed to be preferred by the bees in their foraging for "pollen substitutes" during periods of pollen famine so it was only natural that this be tried at the top of the list. It was found that the feeding of rye meal actually stimulated the brood-rearing activities of the colony, but the rye meal evidently lacked the necessary nutrients to furnish the complete needs of the developing brood and nurse bees. Although the brood-rearing activities were stepped up, this was not advantageous to the colony. The resulting bees lacked necessary vigor, as well as showing other deficiency symptoms, and such feeding was often followed by a serious slump.

Soybean flour has, of course, promised and given the best results in being, at least, the starting substance for practical pollen substitute research, as it contains a very rich supply of proteins. Natural pollens contain certain factors not present in soybean flour; so the core of most recent research has been attempting to learn more about the nature of pollens, including their analysis, and correlating this knowledge with practical experiments with various possible pollen substitute formulas, usually soybean flour with controlled additives, to determine effectiveness and possibilities. Some very promising pollen supplements, and we might add, some that promise to be effective pollen substitutes, have come from this research; but, as yet, no substitute for bee bread.

#### Synthetic Bee Bread by Fermentation

A very important factor has arisen in this research; but it has evidently been passed over lightly—perhaps too lightly. This very important factor is the role played by microorganisms in the conversion of pollen, naturally collected and "stored" by the honey bee, into bee bread. This factor could be a key to the solution to the problem of developing not just a

substitute for pollen, but, more important, a substitute for bee bread. *Whatever changes take place during the "storage" of the pollen to produce the more highly nutritious food product known as bee bread must, in all probability, be the result of microbial activity.* Is it possible that we might be able, if we turned our attentions to it, to manufacture a synthetic bee bread by the use of suitable cultures of microorganisms—by fermentation?

Fermentative action has long been known and utilized in the manufacture of alcohols, cheese products and vinegars; but only in more recent years has it been widely adopted by industry. A partial list of commercial fermentation products would include the familiar antibiotics: penicillin, streptomycin, aureomycin, bacitracin, and terramycin; such synthetic vitamins as ascorbic acid, or vitamin C, riboflavin, also called vitamin B<sub>2</sub> or vitamin G, and vitamin B<sub>12</sub>, a by-product of streptomycin fermentation; the industrial alcohol, butanol, used in the production of synthetic rubber; the very important industrial solvent, acetone, known to the ladies as "nail polish remover"; and the industrial organic acids such as citric acid, used in medicine and in the preparation of soft drinks, and lactic acid, a familiar dietetic preparation also important in the manufacture of commercial plastics. Such developments, as those leading to the synthetic production of the substances mentioned, illustrate the diversity and importance of fermentation processes today.

Fermentation is perhaps best defined as any transformation of an organic substance induced by microorganisms, or by their enzyme products. Industrial fermentation is usually begun by inoculating a medium, especially prepared, with a suitable starter culture containing a sufficient quantity of desirable microorganisms to produce fermentation. The fermentation products are produced a batch at a time and optimum conditions, especially temperature and humidity, are maintained throughout the entire process to obtain maximum yields. Usually a little starter is used to inoculate a small batch of medium; this small batch of medium in time becomes rich enough in microorganisms to start a larger batch of medium; this larger batch of medium in time becomes a starter for an even larger batch; until, finally the desired quantities are involved in the processing schedule, at which

time mass production becomes possible.

It is easy to see how stored pollen could have been inoculated by the bees as it has generally been thoroughly mixed with nectar or regurgitated honey, possibly rich in microorganisms, both while the foraging bee was moistening the grains to make a suitable mass to be carried and during the time it is being packed into a cell by other bees at the hive. The exposure of the pollen, and later the pollen-nectar or pollen-honey mass, receives is certainly quite ample for the inoculation of any number of possible microorganisms, including bacteria and yeasts necessary to induce fermentation.

It seems probable that a suitable

medium, consisting of soybean flour, or possibly one of the better pollen substitute formulas, and unsterilized honey, possibly diluted somewhat to favor microbial growth, could be prepared and inoculated with a sufficient starter culture, consisting entirely of properly aged bee bread, in much the same way fermentation processes are begun in industry, a larger starter being used each time, until the desired quantities are obtained. Once the desired quantities were obtained the product could be produced very economically. This end product should in all probability be very similar, if not the same, as natural bee bread, as produced in the beehive.

This product could possibly be produced by the beekeepers them-

selves on a small scale, much the same way in which common fermentation products are produced domestically in some parts of the country.

So, rather than attempting to "tear apart" and "reconstruct" pollen and bee bread, as we are now attempting to do in our research programs, wouldn't it be somewhat more practical and feasible to attempt to synthesize the bee product known as "bee bread," by enlisting the aid of microorganisms and the fermentation process? If the truth were known, this is probably the way it is done, quite unknowingly, by the honey bee, in whom we are so interested, and upon whom we are so dependent for so many good things.

## Engineering Studies Underway to Modernize Honey Production

Modern technology is helping to make the time-honored art of beekeeping more profitable and efficient, the U. S. Department of Agriculture reports. Already, research has found a way to speed up extraction of comb honey. Other improvements have been made, and many more are in the testing or planning stages.

The studies are being made by agricultural engineers of USDA's Agricultural Research Service at Madison, Wis., and Tucson, Ariz.

The work in Wisconsin, which began in 1949, is being conducted in cooperation with the Wisconsin Agricultural Experiment Station and USDA's North Central States Bee Culture Laboratory. Early in 1956 work at Tucson was started at USDA's Southwestern States Bee Culture Laboratory in cooperation with the Arizona Agricultural Experiment Station, to solve problems peculiar to southwestern bee culture.

USDA researchers have developed a machine that can shorten honey-extraction time. It was made possible by development of a new speed-control unit for a radial extractor. It automatically increases rotation speed.

After the extractor has been loaded with uncapped combs, the operator has only to turn the machine on. No subsequent changing of machine speeds is necessary. The new unit whirls the combs through a cycle of four different speeds, achieving quick, efficient extraction. Varying voltages applied automatically to the ex-

tractor motor alter the speeds as required.

Another new development is a device to uncap honeycombs. It has two sets of aluminum rollers on which teeth are cut. So far, it has been very efficient in uncapping combs but needs more study to provide a way of conserving the capping wax, worth about 60 cents a pound.

Mechanical handling of large hives may be just around the corner, the USDA engineers report. Four experimental machines, all of which lift and tip the hives horizontally for leisurely inspection, have been developed. All look promising. They are based on the lift-fork principle.

Two of the models are hydraulically operated and mounted on trucks, one is hand-operated and mounted on a tricycle frame, and the fourth is a hand-operated machine on a garden tractor. More study of their efficiency is needed, although it has already been determined that the power-operated models cause less alarm among the bees than simple hand examination of the hives.

A new USDA laboratory is being built at Madison where continued study can be made of ways to cut labor costs. Work also is to be done there on moisture stabilization before extraction, on heat exchangers, and on improvements in straining.

At Tucson, work is underway on methods of loading and transporting colonies, on various types of artificial shade and their effects on honey production, on hive paint and its effect on hive temperature.

## British Official Experimental Bulletins

We are indebted to the Rothamsted Experiment Station, Bee Research Department, at Hayendon, Herts, England for various bulletins and reprints which we list as follows:

"Behavior of Egg Laying Workers of Bumblebee Colonies" by J. B. Free. A social order based on dominance prevails in the bumblebee colony.

"Division of Labor within the Bumblebee Colonies" by J. B. Free. Householders or foragers for the most part remain dominant in the field they have accepted though they may change on necessity.

More on "Queen Substance" by Colin G. Butler, reprinted from "Nature" Vol. 77

Still more on "queen substance and its role in the organization of the honeybee community" by Butler. Such "substance" if sufficiently plentiful may inhibit queen production and probably inhibits drone laying workers.

A compendium of recent advances in agricultural research as presented by Colin G. Butler.

A third bulletin on bumblebees by J. B. Free. This one on the "Collection of Food by Bumblebees."

## Mandibular Glands

*The role of the mandibular glands of the honeybee.* Z. Orosi-Pal. *Bee World* 38, 70-3 (1957).

The secretion of the mandibular glands of worker bees serves as a solvent for the manipulation of wax and the collection and manipulation of propolis. It may also play some part in the ripening of nectar or in the digestion process.

## Our Two Cents' Worth

# A Report of the Southern Conference

by H. L. MAXWELL

Over 300 were in attendance at the Southern Conference in Winchester, Virginia (23 states were represented). There was harmony, the people were relaxed and in good humor. I believe it was a profitable and rewarding experience for everyone.

A beautiful program was supplied by the Winchester Chamber of Commerce, mailed free as a souvenir, and it high-lighted the fine hospitality of this Virginia community. The purpose of the Southern Conference was quoted: "It is planned to hold an annual get-together to discuss problems and compare experiences . . . the sense of the whole meeting is for hearty cooperation among these Southern States (and neighbor states who wish to come in) in all matters pertaining to apiculture . . ." This 29th Annual Conference of SSBF bore out the soundness of the purpose of its founders.

Something was added in Winchester—an open forum—a program high-lighting all segments of the industry, participated in by the most representative group of personalities that the writer has ever observed in such a meeting. Experienced and successful apiculturists got in their two cents' worth all through the two day meeting, and they got to know each other better.

Among those there Irvin Stoller, Ohio's outstanding producer and packer (also inventor); Charles Mraz, New England's biggest; O. F. Darnell of California, (8,000 colonies between him and his son); Eugene Jensen of Mississippi; Ralph Wadlow of Florida; The Miller Brothers from Alabama; The Alfred Englehardt of New York, with their attention arresting Honey Queen daughter; The Murrays from Michigan; The Robert Vances from Kentucky; Havilah Babcock of South Carolina; The O'Farrells and Curtis' from North Carolina; The Harvey Yorks of Georgia; Mr. D. A. Wyrosdick of Tennessee; Drs. Anderson and Clarke of Penn State; Bob Dadant of Illinois; Jack Deyell of Ohio; M. S. Fortune and S. W. Stover of Mississippi; J. S. Rossman of Georgia; R. B. Willson of New York; and the host state Virginia had a solid representation with 19 Virginians serving on the host committee.



Charlotte, Secretary to H. L. Maxwell, who gave great assistance to the Conference.

Official luster was added by the presence of Drs. Hamblen and Bohart of Beltsville; Dr. Abrams of the University of Maryland; Dr. Noland of Beltsville; Dr. Reese of Ohio State; Dr. Rowell of V.P.I.; a few among many who were there. (It was reported that 13 entomologists from several states attended the research committee meeting.)

High lights of the program: Senator Harry F. Byrd, Jr. made a strong impact in his welcoming address; Dr. Hamblen was featured in the press as the keynoter with emphasis on pollination; R. B. Willson got a big hand in the press and made a forceful contribution to the program. Harvey York's panel was composed of an array of experts who made a fine contribution. Bob Dadant's panel (substituting for Editor Cale) was equally well done. Stoller's panel was beautifully handled, with professional and experienced personnel participating. Charlie Mraz made a terrific contribution to the writer's panel on poisons, with a constructive recommendation from West Virginia's Harner, and John Amos of V. P. I.; Mrs. Grace gave her impressive story of what the American Honey Institute was doing. Such were the fine contributions to the program. It was balanced and interesting, apparently to everyone, all the way through.

Mr. Clay was at his best at the banquet, to a packed room, and a great variety of contributions were called forth by this great friend of

the bee industry. Our own Charlotte, whose picture graces this article and who unstintingly assisted at the meeting, exercised another of her talents by rendering a couple songs (Charlotte will certainly be elected Virginia's Honey Queen).

Our idea of farming-out speaker talent in the community paid off. Bob Dadant and Bill Clarke talked to a high school assembly of over 400 students plus faculty of 40. (60 vocational-agricultural students came specially from another high school to hear Dr. Hamblen). Others spoke at civic clubs and we since have had calls for our copy of the film "Realm of the Honey Bee," plus requests to visit our honey plant. This is just a constructive way to let the people know who we are and what our business is about. It is fine advertising. Also, was the fine array of exhibits in the hotel lobby.

## Honey Industry Council of America Revolving Fund

Balance — Peoples National  
Bank August 31, 1957 \$1,217.79

### RECEIPTS:

Sale of Stamps \$ 271.50  
Contributions 1,200.00 \$1,471.50  
Total receipts through  
October 31, 1957 \$2,689.29

### DISBURSEMENTS:

Contributions—  
American Beekeeping Federation  
Sept. and Oct. \$400.00  
American Beekeeping Federation  
"Special" 500.00  
American Honey Institute  
for Sept. and Oct. 800.00 \$1,700.00  
Balance — Peoples National  
Bank Oct 31, 1957 \$ 989.29  
Savings Account — Peoples  
National Bank \$3,000.00  
L. H. Little, Sec'y.-Treas.

## Mexico Crop

From September 1956 to September 1957, honey production in Mexico was 52 million kilograms and 2.6 million kilograms of beeswax—177 million pesos in value. During the same period the state of Yucatan alone produced a value of 22 million pesos from its honey producing business. During September 1957, Yucatan exported 1480 kilograms of honey.

Rodolfo Espinosa  
Morelia, Michoacan, Mexico



# MEETINGS



# HERE and THERE

**Federation Convention, Neil House,  
Columbus, Ohio, Jan. 28 to Feb. 1**

All those interested in the various segments of our industry are looking forward to seeing one another January 28th to February 1st at the Neil House, Columbus, Ohio. Columbus is an easy reach by auto from the mid-west and mid-east areas. Good highways come into Columbus from almost any direction and parking space may be secured at the rear of Neil House. For those coming by train or plane the meeting place is easily accessible. The Convention site is in the middle of Columbus, convenient for those who wish to look around.

The central theme of the Convention will be "Industrywide Cooperation" and with the present trend and conditions it surely will be a worth while theme. In addition, "Honey Marketing" with C. D. Floyd in charge. "Research Developments" under Clarence Benson. A "Royal Jelly" discussion led by R. B. Willson and L. H. Little. These are just a few of the events. The Ohio ladies are going all-out to welcome the ladies of our beekeeping friends and an interesting schedule is being worked out for them.

## Advance Registration

For the first time the Federation is offering advance registration for those who know they will be present and are willing to avoid future congestion by registering now. Advance registration will be accepted and acknowledged until January 15th. Any arriving after that will be held at the convention registration desk until arrival. \$5.00 will cover registration and banquet ticket for one person. Send check or money order to Arrangements Chairman, PO box 885, Springfield, Ohio.

Those who will appear on our program that have given definite acceptance to appear are as follows:

Address of Welcome—Dr. James R. May, Director of Agriculture—Ohio State

Response—Ray Reed, Vice Pres. A.B. F. Inc.

President's Address—S. J. Watkins, Pres. A.B.F. Inc.

Keynote address "Industry Wide Cooperation"—Woodrow Miller

A.A. Greenwood—U. S. Dept. of Agriculture Sugar Division

Marvin Webster—U. S. Dept. of Agriculture Fruit & Veg. Division

R. B. Willson—Royal Jelly and Its Possibilities

Leslie Little—Production and Marketing of Royal Jelly

Edwin J. Anderson—Dept. of Entomology, Penn. State University

"Honey and pollen plants suitable for retaining highway and railroad banks."

Dr. Robert E. Stier—Medical Director Hollister and Stier Lab. Spokane, Washington "Immunity to individuals who have serious reactions to Bee Stings"

Speaker from the National Dairy Assn. (speaker yet to be named)

Panel Discussion on the "Check Off Plan"—Ken Bradshaw—Moderator (Panel members yet to be selected.)

Clarence Benson—Chr. Research Comm. A.B.F. Inc. "Research"

C. D. Floyd—Chr. Marketing & Promotion Comm. A.B.F. Inc.

"Marketing and Promotion of Honey"

A. R. Dean, Pres. Eastern Apicultural Society, will conduct a meeting for Hobbyists.

Henry Piechowski—Assist. Chr. "500 Club," will conduct a meeting of the "500 Club."

I have had word from the Packer and Dealers, Honey Council, Bee Industries Association.

These groups will hold meetings during the convention week.

## Colorado, Denver, December 9-10

The Colorado Association will hold their winter meeting at the Auditorium Hotel in Denver, December 9th and 10th. We will have an interesting and informative meeting that no beekeeper can afford to miss. The banquet will be the evening of the 9th and we would like to have all bee-

keepers that are unable to attend the day sessions join us for the banquet. Make your plans now to attend.

Gerald Rose, president  
Wheat Ridge.

## Middlesex County (Mass.) Waltham, Dec. 28

The next meeting of the Middlesex County Beekeepers' Association (Mass.) is scheduled for Saturday, December 28, at the Waltham Field Station. Although after Christmas, St. Nick has promised to make a return visit specially for his good friends the beekeepers. It is hoped both young and old members will be on hand.

The Flower Show Committee for the 1958 Spring Flower Show reports that they are hard at work on plans for the Show. Not only does the Flower Show herald the start of the spring season, but the bee exhibit is most important in attracting newcomers to the pleasure of keeping bees.

L. C. Proctor  
Secretary

## Wyoming Convention, Worland, Dec. 4th-5th

Washakie Hotel. Morning—registration, reports by Buck and Spackman and from Commissioner Bill Chapman. Afternoon—committee reports and our feature speaker, Bob Dadant, from Hamilton, Illinois. Round table discussions; a panel on clarification of honey; discussion on the use of excluders. Election of officers. Then the banquet in the evening to honor Dr. Sturtevant who is retiring in April.

Thursday we will have a speaker from Superior Honey Co. Plus finishing the loose ends left from Wednesday.

(Wyoming "Bee Lines";  
George Krause, Jr., Editor)

## The Tiny Town of Good Bee

About 100 people live in a tiny town called Good Bee which happens to be within St. Tammany Parish, Louisiana.

Samuel Freeman  
California

**Westchester County (New York),  
New Rochelle, Dec. 15th**

Our next meeting and Annual Xmas Party will be held at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. on Sunday, December 15th at 2:30 p.m. sharp.

Each member and family including visitors are requested to bring a gift, not to exceed 50 cents. Please mark them for child or adult. Santa will be on hand to distribute these gifts. Movies will also be shown.

A buffet supper will be served by the "Queen Bees." Let's make this a gala Xmas Party.

Mrs. Alfred Roth, Pub.

**Midwestern (Missouri), Kansas  
City, Dec. 8th**

The Midwestern Beekeepers' Association will meet at the I.O.O.F. Hall, 812 Westport Road, Kansas City, at 2:30 P.M., Sunday, December 8th. On the agenda will be the election of officers for the ensuing year, a film pertaining to beekeeping and a Christmas Party to follow. Everyone welcome. Refreshments served by Ladies Auxiliary.

J. F. Maher, Secretary.

**Don't Forget the National Honey Show  
at the Tampa State Fair, Feb. 4-8**

Don't forget to bottle some of that good extracted honey and save some of those fine sections for display at the National Honey Show at the Florida State Fair, Tampa, Fla. February 4-8, 1958. There are lots of shelves to be filled, good premiums have been provided, folks from all over the country will be there to look, and it's up to the beekeepers to furnish the honey to complete the picture. 12 1 lb. jars of honey can win a cash prize up to \$15 and can also help to advertise honey effectively at a fair of this kind.

Judges for the Show are Dr. Mill-edge Murphy, Prof. of Entomology, College of Agriculture, University of Florida, Gainesville, and Frank Robinson, Florida Agricultural Experiment Station, Gainesville. Dr. Murphy teaches one of the best rounded and most practical courses in beekeeping given anywhere in the country. Frank Robinson is well known for his work and study on honey plant introduction and is now also working on certain phases of citrus pollination.

For those who attend the American Beekeeping Federation meeting at Columbus, Ohio it is planned now that someone from Florida will be

there and pick up entries for the show. Entries will not be returned unless requested and those not returned will be sold to best advantage and money turned over to a worthy beekeeping cause.

Millard Cogshall  
Mineola, Fla.

**Cook DuPage, Illinois  
Christmas Party, December 14th  
Annual Meeting, February 15th**

A gala Christmas Party will be held December 14, at the Garfield Park Gold Dome Building. All our beekeepers and their families are invited to attend. Good food, games, gifts, music, a Christmas tree and all the trimmings should all add up to a most happy evening.

The Annual Meeting and Banquet will be on February 15, 1958 at the famous Klas' Restaurant, located at 5734 W. Cermak Rd., Cicero, Illinois. Meeting will start at 2:30 P.M.—Banquet at 6:30 P.M.

The tentative program is as follows:

Dr. Floyd E. Moeller, Apiculturist, University of Wisconsin

Floyd A. Swink, Naturalist of Conservation Dept., Forest Preserve Dist. of Cook County

Dr. V. G. Milum, Apiculturist, University of Illinois

Carl E. Killion, Chief Apiary Inspector, State of Illinois

Charles Dadant, Dadant and Sons, Inc.

Alan Root, General Mgr., A. I. Root Co.

All beekeepers are invited to attend. For further information contact Mrs. Grace E. Sedlak, Secretary, Rt. No. 2, Box 461, Oak Lawn, Illinois. Phone: Globe 8-2972.

**Apicultural Society, (Rhode Island)  
Christmas Party, Dec. 21st, Apponaug**

Christmas Party meeting of the Apicultural Society of Rhode Island will be at 5 p.m., Dec. 21st, St. Barnabus Episcopal Church, Apponaug. The committee is planning plenty of fun for the youngsters and oldsters. Come and stump the panel of experts during the Bee Quiz. Chairman on party arrangements Mrs. Benedine Segor.

John P. Cord,  
Secretary

## Ohio's Governor Sets the Mood



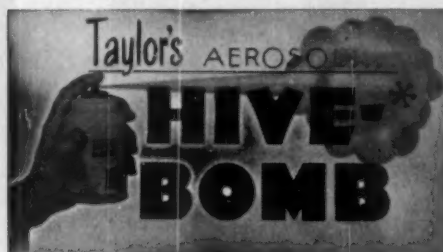
Here Ohio's Governor and Mrs. William O'Neil are contemplating honey on their biscuits to help set the mood for the convention of the American Beekeeping Federation in Columbus in late January. Mrs. O'Neil has invited the ladies attending the Convention to have their tea at the Governor's mansion. The ladies will enjoy meeting the gracious and charming Mrs. O'Neil in her home.

(From Emilie Root  
Medina, Ohio)

**Thank You**  
**For a Successful Season**  
**REMEMBER—**  
**QUALITY QUEENS FOR '58**  
**J. C. RIVES**  
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 The leading Rabbit Farming Magazine,  
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- no sparks
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**ROYAL JELLY**  
 \$16.00 Per Ounce  
 With Directions On How to mix and  
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We wish to thank each and every one  
 of our customers for A Very Good Season.  
 This being our 32nd one shipping package  
 bees and queens. Our Mott Strain is tops.  
 Write for prices for '58.  
**TAYLOR APIARIES, Box 249, Luverne, Ala.**

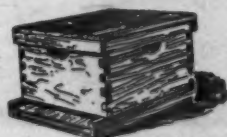
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Book now to be assured of your pre-  
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**Howard Weaver**

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## BEE SUPPLIES

WRITE FOR 1957 CATALOG

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## Carniolan and Caucasian QUEENS

1957 nearing close, I desire to thank my  
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 put again to try to meet the increased  
 demand for Carniolan and Caucasian  
 Queens. They are the answer to gen-  
 tleness and production. Booking orders  
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Track loads a specialty. Nuclei made to order. Caucasian and Italian queens.

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Cut Comb and Extracted  
Advise what you have

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**E. J. Bordelon Apiaries**  
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### Chrysler's Electric Welded All-Steel Queen Excluder



The only  
worthwhile  
Queen  
Excluder  
on the market

- Accurate spacing
- Allows maximum bee passage
- Better ventilation
- More honey production
- No wood. No Burr combs
- No sharp edges to injure bees
- So durably made that it is permanently queen excluding and will last a life time.

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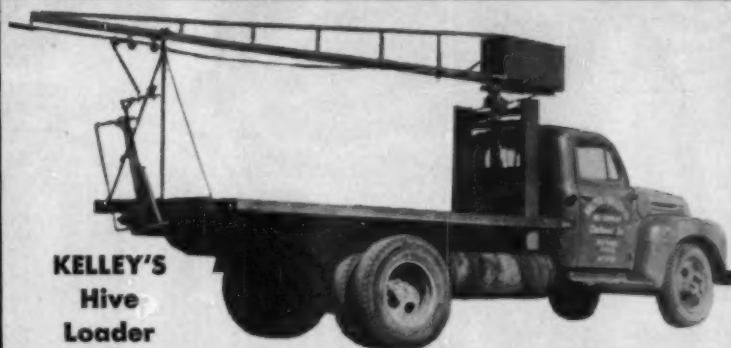
### SEASON'S GREETINGS

*"A Merry Christmas and Happy New Year"*

May Good Health and Abundant Living be yours in the years ahead is our Sincere Wish for every Beekeeper Everywhere. Let us celebrate the Birth of Christ in awe-inspiring Reverence, in true Christian Fellowship and Love.

*"Love worketh no ill to his neighbor: therefore love is the fulfilling of the law." Romans 13:10.*

**JENSEN'S APIARIES Macon, Miss. U.S.A.**



**KELLEY'S  
Hive  
Loader**

Is your back giving you trouble from lifting heavy supers of honey? Why not buy a slave that is always ready — a strong slave that will lift up to 5 full hive bodies at a time. The load can be swung to one side, the brood nest examined, supers added if desired and the load placed back on the hive gently or rolled to the truck or the process reversed.

This machine with one battery, plus your truck battery does all of the work. You push buttons to raise or lower the load, raise or lower the boom so that the load rolls to or from the truck. Truck generator keeps batteries charged in normal highway travel. Get one installed this winter to avoid the spring rush. Free Circular. Fits 1½ ton and heavier trucks.

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Our queens are bred for honey production, not for good looks, however you will find their offspring to be uniform in color and gentleness. Let us hear from you.

NO PACKAGE BEES FOR 1958

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The Village Beekeeper

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A Good Man to help produce queens and package bees that are now being booked. Experience not necessary.

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**AMERICAN BEE JOURNAL**

**Hamilton, Illinois**



SUE BEE SAYS:

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One of the most important items is the health of the colonies you will winter over. A small amount of Fumadil B fed this fall will pay big dividends next spring.

We have a large, fresh stock of Fumadil B as well as Terramycin and Sulfathiazole. Check these prices. Your order in the mail today will insure prompt attention.

0.5 gm. Fumadil B. ....	\$ 2.40
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# -The Market Place-

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**FOR SALE—Royal Jelly and The Little Queen Royal Jelly Extractor.** Royal Jelly Enterprises, 1017 Los Carneros Avenue, Napa, California.

**ROYAL JELLY CAPSULES** 50 MGS 30 capsules \$5.00. John Pierson, 1827-42nd Ave., San Francisco, California.

**COMPLETE COMMERCIAL** honey producing business in South Florida consisting of 1000 hives, bees on location, extracting plant, trucks, extra equipment, supplies and other items too numerous to mention. Excellent locations in orange and one of the best queen rearing sites in U.S. Terms to interested buyer. Inventory on request.

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**100 COLONIES OF BEES,** guaranteed disease free, in 10 frame 2 body hives in excellent condition, 1-4 frame extractor motor driven may also be hand driven, 1-100 gallon honey tank, 2-50 gallon honey tanks, 1 float controlled honey pump. Lots of supers complete with frames also in excellent condition. Have to give up bee keeping on account of poor health. Otto Lange, Sr., Linn, Kansas.

**HONEY JAR** capping machine with chucks for 38, 48, 53 and 58mm caps, Cap Tightener, Flash heater, Electric Budgit Hoist 2000 lbs. for handling drums of honey. **HUBBARD APIARIES,** Manufacturers Bee Supplies & Comb Foundation, Onsted, Michigan.

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**WE ARE PAYING** top market prices for beeswax. Ship to any one of our plants: Sioux City, Iowa; Lima, Ohio; Rogers Texas; Waycross, Georgia; Anaheim, California. **Sioux Honey Association,** 509-11 Plymouth St., Sioux City, Iowa.

**WRITE FOR SHIPPING TAGS** and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. **Walter T. Kelley Co.,** Clarkson, Ky.

**WAX WORKERS** render and buy beeswax, manufacture plain and WAVY-WIRED foundation. Prices and shipping tags on request. **Wax Workers,** Rhaca, New York.

## HONEY FOR SALE

**WHITE CLOVER HONEY** in sixties. John A. Sheehan, Falmouth, Ky.

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**WHITE TO WATER** white, sweet clover honey in good used 60's in car load lots, or truck loads. **J. D. Overbey,** Bruce, South Dakota.

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**WANTED, TWO** used 45 frame Root simplicity extractors. **Schraeder Bee Co.,** Crookston, Minn.

**WANTED HONEY SECTION** comb, white and Amber extracted honey. **F. E. Hyde,** New Canton, Ill.

**WANTED: DON-LO** or similar loader with or without truck. Send pictures and prices. **Ronald Culp,** Circleville, Ohio.

**WANTED: 400** used ten frame wire excluders with wood frames. **Wilbur Ellsworth,** Tarkio, Missouri.

**WANTED: To buy** on honey crop payments, 500 to 1500 colonies in good 10 frame equipment with supers. To be operated in good water white honey producing territory. **Dakota Apiaries,** 809-2nd Ave., West, Dickinson, North Dakota.

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**HELP WANTED—Seasonal,** year around. Experienced or inexperienced. In Texas, North Dakota. **Stewart Apiaries,** Trenton, Texas.

**THOROUGHLY** experienced Bee Man in all branches for 1958 season, good wages. Box B c/o American Bee Journal.

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**BEEES REMOVED FROM house or tree to hive** without touching either house or bees. Bees will then move honey into hive. Save property, honey and bees with my method. Send \$2 for details. Satisfaction guaranteed. George Hawkins, Rt. 1, Lawson, Mo.

KNOW interesting facts about the bees of India through the **INDIAN BEE JOURNAL**, published in English by the Bhupen Apiaries (Himalayas), Ramgarh Dist. Nainital, U.P., India, and obtainable from them. Subs. Rs9/-, or \$15/-, or \$2.25 yearly. Sample copy, post free, Rs. 1/-, or \$2.6 or 40c (International money order). Payment in mint postage stamps of your country accepted.

**ROYAL JELLY** box of 30 capsules with 50 milligram Royal Jelly per capsule \$4.35 to beekeepers retails for \$8.50, box of 1000 in bulk \$135.00 postage paid in the United States. A. Tennenhouse, Prairie View Honey Co., 12305-12 St., Detroit 6, Mich.

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# INDEX

VOLUME XCVII

1957

- A**
- ABJ microfilms—185
- ABJ's 96th year—463
- Abstracts—Polen—194, 195
- Royal Jelly—195
- Acarine disease in India—107
- Accidents on highways—273
- Acetic acid—24
- African honey guides—140
- Aids to beekeeping—95
- Alfalfa aphid, control of—327
- American Beekeeping Federation meeting—27, 109, 198, 319, 442, 480
- American Beekeeping Federation officers—109
- American foulbrood pictures in color—161
- Ammonium nitrate—11, 342
- Antibiotics for bees—49, 104, 228, 408, 422
- Ants taking bee bread—448
- Ants to control timber pests—235
- Apiary burned—433
- Armbruster's 70th birthday—354
- Artificial insemination—64
- Arthritis and rheumatism—403, 439
- Asbestos for lining smoker—387
- Australian bee notes—395
- B**
- Bear shot in apiary—235
- Bee**
- beard—340
- bread—476
- inspection—58, 96, 399, 405, 421
- journals, articles for—384
- meeting advantageous—303
- new—48
- venom—232
- with pollen—87
- Beehives, Polish—235
- Beekeepers' plan of work—462
- Beekeepers register in Mass.—194
- Beekeeper's workshop—348
- Beekeeping**
- a worth-while business—185
- aids—95
- as a hobby—106
- by-products—232
- class—307
- commercial—262
- economics—88
- extensive—178
- from wife's viewpoint—96
- future—302
- in Brazil—394
- leaders—354
- midwest vs. southern—429
- museum—55
- Bees**
- carrying messages—220
- (dead) for fertilizer—268
- disturbed by jet planes—150
- form a true republic—349
- Greek—314
- lift for moving—8, 14, 107
- move eggs—267, 348, 390
- number in B. C.—263
- of India—434
- racers—434
- stingless—196
- switching to new crop—241
- Beginners' experiences—21, 145, 308
- Birds guide men to bee trees—140
- Bodies, how to repair—342, 427
- Boiler for uncapping—306
- Boren, R. B., to Kana. State Col.—439
- C**
- Calcium chloride—241
- Canada's first commercial beekeeper—423
- Candy, the first—106
- Cappings, drying—384
- Caucasians—429
- Centennial in Minnesota—340
- Check-off plan—161, 261, 285, 365, 436
- Chemotherapy for foulbrood—228, 276
- Chunk honey, percent of comb—12
- Chunk honey production—176, 233
- Clover, pollination of white—317
- Clover, variations in red—17
- Cogball, Wm. L., resigns—230
- Comb honey grades not revised—195
- Comb honey packages—426
- Comb honey production—56, 175
- Comb honey supers, refurnishing—406
- Combs, good ones necessary—236
- Combs, new device to uncap—478
- Commercial crop, handling—341
- Corn oil for heart trouble—236
- Corrections in Kalthoff article—233
- Crop report, 1956—12, 1957—368
- Crop, selling—432
- Cut comb honey production—381
- D**
- Death Notices**
- Braun, Erdman—23
- Fischer, Mrs. Lena Y.—403
- Hill, Harry K.—66
- Jones, Glenn O.—277
- Peterson, G. E.—66
- Schweis, Geo. G.—66
- Sternenberg, F. W.—223
- Stine, Rev. J. W.—110
- Zander, Dr. Enoch—355
- Davis, J. J., retires—241
- Disease, treatment for—104, 228, 276
- Diseases of bees**
- Acarine in India—107
- American foulbrood—229, 468
- European foulbrood—50, 225
- in Britain—367
- Nosema—24, 62, 106, 179, 277, 316, 469
- Divides, how to make—55, 135
- Drought in Kansas—180
- Drugs to control bees—11, 149, 273, 342, 435
- Dugut queen system—184
- E**
- Editorials**
- Action needed now—365
- Check-off plan—161, 245, 285, 325, 365, 405
- Farm legislation, new approach to—443
- Happy New Year—33
- Honey promotion—365, 445
- Proportion and perspective—245
- Research for honey and beekeeping—73, 295, 245, 325, 405
- Statistics by Agr. Research Service—325
- Support our honey research—405
- Washington state publicizes honey—445
- Words of wisdom—117
- Economics of beekeeping—88, 134
- Educating public to use honey—424, 426
- Eggs moved by bees—267, 348, 390
- Elm tree, new—180
- Ephardt, Fred, honey producer—49
- Equipment, care of—20
- Ethylene Dibromide for wax moths—132
- European foulbrood—50, 225, 422
- Express rates increase—405
- Extracted honey production—237
- Extractor, homemade—384
- F**
- Fall management—386
- Father and son beekeeping—469
- Feeding bees—94, 100, 183
- Fire destroys warehouse—342
- Floet, (Pa.)—321
- Florida beekeeping—55
- Florida state fair—442
- Forest fires endanger hives—344
- Foster, H. S., retires—399
- Four-H award given—66
- Frames, nine best—140
- Frisch movie film—141
- Fruit disease control—148
- Fumidil-B—106, 110
- Fumigation for Nosema—24
- Fungicides and their effects—437
- G**
- Geiger counter for disease study—195
- Grades of comb honey not revised—195
- Granulated honey—396
- Greek bee—314
- H**
- Handel, Chas., Lifetime with bees—427
- Hive**
- bodies, repairing—342, 427
- deep—389
- entrance, upper—382
- numbering—16
- observation—17
- Prokopovich—474
- tool—67
- Hobbies of a beekeeper—309
- Hobbyist beekeeping program—190
- Hofmann story—464
- Honey**
- advertising—385
- and cancer—234
- blending—261
- check-off plan—161, 261, 436
- consumption in USA—224
- crop in Mexico—479
- extracting—341, 346, 347
- for athletes—189, 200
- for breakfast week—153, 321, 365
- for burns—141
- for market—352, 426, 432
- from lime trees—448
- from pine—435
- harvesting—272
- heather—281
- heating in extractor—16
- hunting wild—146
- in filter-tip cigarettes—17
- in infant feeding—231
- Industry Council report—436, 479
- maintain good quality—12
- plants, search for new—300
- price support—103, 177, 230, 368
- producing orange—343
- production, modernizing—478
- production of extracted—237
- promotion—365
- reports, 1956—12, 89-1957—368
- Canadian—133
- New Zealand—365
- show—280, 401, 442
- skip—269
- smuggled by bees—224
- spread—194
- strength in—433
- tested with rats—281
- world wide—325
- Honeydew—102, 139
- Hooper, May, English beekeeper—190
- Horguelin, Paul, visitor—382
- Hybrids affect management—48
- Honey plants**
- Bee Bee tree—17
- Blue spirea—227
- Brazilian—394
- Floranna clover—63
- Goat willow—237
- Golden cleome—227
- Purple loosestrife—390
- Silver bell—102
- Sourwood—103
- I**
- Increase with swarms—266
- India, bees of—434
- Inspection**
- Florida—309, 421
- Illinois—96, 405
- Nevada—56
- Insulation made of paper cartons—268
- Insurance for bee losses—261
- Israel, notes from—475
- J**
- Jackson, D. C., has loss from fire—342
- Jessup, John G., award—64
- Jet planes affect bees—150, 281
- Jones, D. A. honored—387, 423
- L**
- Laughing gas—11, 149, 273, 342
- Left for moving bees—8, 107
- Lifting device, how to make—14
- Lightning strikes hive—16
- Loosener for heather honey—281
- M**
- Mandibular glands—478
- Maple honey spread—194
- Marketing honey—353
- Mediterranean fruit fly—192
- Mexico prohibits queens by mail—63
- Mice, field—306
- Michigan beekeepers—361
- Microfilms of ABJ—185
- Microorganisms in bee bread—476
- Milum, Dr. V. G., to Dept. Horticulture—151
- Morse, Roger, to Cornell—439
- Moving bees, gas used—11
- Moving bees, lift used—8, 14
- Museum, beekeeping—35



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**N**  
National honey show—280, 401, 442, 481  
Nitrous oxide—11, 149  
Nolan, W. J., retires—359  
Nosema—24, 62, 106, 110, 179, 274, 277, 316  
Numbering and naming hives—16, 183

**P**  
Package bees—57, 91, 136, 221, 263, 422  
Painting bee equipment—17, 223  
Pellett, F. C., an inspired writer—430  
Penicillin increases bee's life span—281  
Peppermint spray instead of smoke—140  
Pesticides toxic to man—220  
Pets, festival of—319  
Plan for intensive beekeeping—462  
Plant breeding for the amateur—469  
Plastic container for honey—179  
Plastic flowers aid research—438  
Poetry in bees and honey—281  
Pollen—

antibiotic substance of—194  
consumption in winter—220  
needs research—332  
substitute—90, 138  
vitamin content—195  
Pollens and antibiotics—327  
Pollination—

bees for—144  
in Texas—10  
of cotton—52  
of white clover—317  
Russian—199

Price support for honey—103, 177, 230, 368  
Price, W. S., retires—359  
Propolis poisoning—223  
Puzzles—18, 58, 98, 142, 186, 242, 270, 310,  
350, 390, 430, 470

## Publications

**Books—**  
Annual Review of Entomology, Vol.  
2—205  
Honey Bee (Japanese), Okada & Sakar  
—205  
Honey Plant Manual, Lovell—61  
Polish Book on Anatomy, etc., Weber  
—321

## Bulletins, Circulars and Leaflets—

Behavior of Egg Laying Workers of  
Bumblebee Colonies (Eng.)—478  
Buds and Fruits of Eucalyptus, (Aus-  
tralia)—313  
Collection of Food by Bumblebees -  
(Eng.)—478

Division of Labor within the Bumblebee  
Colonies (Eng.)—478  
Package Bees (Can.)—469  
Honey Production and Marketing,  
USDA—97

Some Honey Plants of Florida, Arnold  
—97  
Supplement to Bul. 429, (Can.)—161  
Mating Ranges of the Honeybee (Can.)  
—435

Multiple Matings of Queen (Can.)—435  
History of Manitoba Beekeeping  
(Can.)—439

No. 216—The OAC Continuous Flow  
Honey Pasteurizer—9  
No. 218—The OAC Pressure Strainer  
(Can.)—9, 403

No. 285—Uniform Granulation of Honey  
by Continuous Flow (Can.)—9  
No. 403 - N.J. - Woody Roadside  
Honey Plantings—468

No. 766—Ill. Managing Soil Bank Acres  
—89  
No. 354—Ore. Bees for Legume Seed  
Production—182

No. 470—Pa. The Beginner and his Bees  
—189  
No. 472—Pa. Pennsylvania Beekeeping  
—350

Pamphlet No. 3, Honey in Tanganyika—  
288  
Cause of European Foulbrood (Eng.)  
—435

Food of Adult Drone Honeybees (Eng.)  
—435  
Laboratory Diagnosis of Honeybee Dis-  
eases (Eng.)—435

Problems of Red Clover Pollination  
(Eng.)—435  
Rothamsted Bee Department (Eng.)—  
435  
Survey of British Honey Sources (Eng.)  
—435  
Transmission of Food to Bees (Eng.)—  
435

**Q**  
Queen cells—99  
Queen Cells, examination of—387  
Queen—  
hybrid—15  
introduction—16  
multiple system—184  
rearing—312, 393  
rearing for own apiary—54  
substance—432, 448  
Queens by mail to Mexico prohibited—63  
Quinidine sulfate ineffective disease con-  
trol—277

**R**  
Reading material, kind wanted—384, 430  
Records for beekeeping—301  
Registering of beekeepers—194  
Repairing hive bodies—342, 427  
Reports—  
1956—12, 99  
1957—368  
Canadian—133  
Honey Industry Council—436  
New Zealand—365  
Requeening—183, 188, 219, 268, 308  
Research—

on bee sounds—435  
on bee stings—403, 439  
on extraction of honey—478  
on honey bee organs—443  
on pollen substitute—477  
on use of honey—73, 148, 205, 245  
Robbing—386  
Rockefeller Foundation—205  
Royal Jelly—A Review—356, 386  
Royal Jelly—92, 195, 205, 232, 273

**S**  
Scale hive—222  
Scholarship to Marilee Ammer—473  
School lunch program—427  
Scouts interested in bees—223, 388  
Seed—

crimson—48, 368  
flax—149  
forecast—U. S.—9, 443  
price advance—205, 226  
production of legume—242  
reports—439, 448  
Co.—359

Shore, Wendell, joins Superior Honey  
Co.—359  
Sirup economically made—384  
Skeps—369

Smoker fuel—230, 386  
Smoker, lining with asbestos—387  
Snake in bee yard—141

Sounds made by honey bees—435  
Sourwood honey—103  
Southern conference report—479

Spraying problems—220, 273, 275, 347, 437  
Spring management—60, 136  
State Fair winners—Ill.—401, Mo.—402

Stings for poison ivy—281  
Stings to halt bleeding—285  
Strainer, OAC pressure—460

Subsidy for bee disease work—273  
Supers, (6%) best for beekeeping—260  
Supers, removing with escape boards—346

Swarm, increase with—266  
Swarming—56, 182  
Swarms, catching—403

Sweat, how to control—57

**T**  
Tar paper wraps—380  
Tax on honey shipped into Wash.—179  
Tennessee officials—321  
Tetracycline compounds—22  
Fire carrier—8  
Titles of books—430  
Traffic deaths—141  
Transferring—96  
Transferring from tree—60

Traveling with the Lovells—102  
Twine for smoker fuel—386  
Two-location honey production—49

**U**  
Uniting colonies—433  
Upper hive entrance—382

**W**  
Washington state taxes honey—179  
Water for bees—139  
Wax moth—132, 383  
Wax rendering—346, 392  
Wintering—380, 428  
Wintering bees in cellar—222

**A**  
Adie, A.—341, 347, 460  
Amaral, Erico—394  
Anderson, Clyde—427  
Ault, E. B.—10

**B**  
Bailey, L.—24  
Beck, C. H.—301  
Bizak, Jacob—475  
Blum, Robert—354  
Boch, R.—277  
Boettger, A. J.—268  
Bourne, A. L.—437  
Bragonier, R. J.—57  
Bryson, Mrs. C. R.—96  
Buckenroth, Kenneth—309  
Bunch, F. Q.—303

**C**  
Cale, Sr., G. H.—49, 267, 383, 464  
Cannon, Jim—343  
Chandler, Donald C.—469  
Childers, L. F.—94, 138, 141  
Clark, Jr., W. W.—30, 60, 100, 144, 188, 236,  
272, 312, 352, 392, 432, 472  
Cmejla, Dr. H. E.—274, 318  
Copeland, Walter M.—194, 381  
Courmier, Earl—429  
Culbertson, Donnie—308

**D**  
Dadant, R. H.—88, 134  
Domas, Emil—268  
Duncan, A. H.—184

**E**  
Easing, Howard—183  
Eckert, Dr. J. E.—288  
Ellis, Dr. L. L.—62

**F**  
Floyd, C. D.—12  
Foote, Homer Len—476  
Franklin, W. W.—150  
Frehofer, G. T.—101  
Fretz, J. Herbert—466

**G**  
Georgandas, Panagiotis—314  
Gochnaur, Thomas A.—104  
Grace, Harriett M.—231

**H**  
Hagood, Jr., Geo. B.—344  
Handel, Charles—427  
Hansen, Henry W.—91, 136, 231, 262  
Harper, Norman H.—56  
Hastings, J. E.—420  
Haydak, Mykola M.—90, 474  
Herbert, Martha M.—269  
Herrick, Jr., R. W.—433  
Herring, Dr. R. A.—267  
Hill, Norman J.—348  
Hofmann, Charles S.—222, 340  
Holzberlein, John—177

**J**  
Jacobs, B. D.—185  
Jamieson, Dr. C. A.—106, 277  
Jarvis, Dr. D. C.—234

**K**  
Kalthoff, Carl—176  
Kelsheimer, E. G.—192  
Kenerly, A. B.—302  
Kinniersley, Robert—469  
Knutson, Benn—319  
Kosanke, Marvin W.—342  
Krebs, H. M.—132

**L**  
Lawrence, Lewis K.—348  
LeRoy, Wayne—220  
Lindsey, Charles Webster—468  
Lisne, Julius—54, 135, 192, 237, 266, 346, 386,  
426

**M**  
Mahaffey, Richard R.—21  
Mangham, Roger—389  
Maxwell, H. L.—95, 479  
McLellan, Dr. G. A.—387  
Mead, Robert M.—232, 300  
Michael, A. S.—107  
Miglorine, Roger—437  
Moffett, Joseph O.—22

**N**  
Nance, Troy H.—424  
Neiman, William J.—349

**P**  
Pankiw, P.—422  
Pearson, Ralph H.—17  
Pellett, Melvin A.—227  
Perschbacher, W. F.—61

**R**  
Racine, Bruno—384  
Rajagopalan, A.—434  
Rea, Geo. H.—185, 349  
Reynolds, Lynn—426  
Roberts, Hervey—97  
Robinson, Earl C.—462  
Robinson, F. A.—192  
Rusher, Robert H.—306

**S**  
Shaw, F. R.—437  
Singer, Warren C.—382  
Small, A. V.—180  
Smith, C. W.—57

Smith, Ray E.—145  
Snyder, William—388  
Stauble, Robert A.—15  
Steffen, Paul—387  
Stewart, Lee R.—11, 384  
Stricker, Milton H.—50, 140, 263  
Studier, Herbert—178  
Summick, William E.—225

**T**  
Townsend, G. F.—341, 347, 460

**W**  
Walker, C. R.—14  
Weaver, Nevin—317  
Wells, F. B.—149  
Willson, R. B.—356, 396  
Wilson, C. A.—62  
Wilson, Wm. T.—22

**Y**  
Yates, Herbert E.—8

## —Crop and Market—

by M. G. Dadant

If we are to consider spring prospects in the light of those of late fall, then we should look through rosy glasses. In many years there has rarely been a season when all conditions looked better than they do at present.

New England has not entirely suffered from the drought for nothing, but still more moisture is needed, and at this writing it looks as if snows will fill the bill. There is some complaint of lack of moisture in parts of Florida, eastern Montana, Idaho, the Prairie Provinces of Canada, and in some parts of Oklahoma and New Mexico and Arizona.

On the whole, colonies have gone into winter with a good food supply, thanks to enough fall flowers yielding to fill brood chambers, though surpluses were not up to expectations. Earlier moisture has revived the honey plants, even in the stricken East, and in the Plains States, and the little Dutch white clover in the Central Areas and in the East seems to give hopes of prospects for 1958, providing there is still the nutrients in the soil from which to get a nectar yield.

In fact we might say that prospects do look very good.

### Honey Selling

Most reporters seem to be agreed that in a retail way, honey is selling about as usual, with a general pickup with the cold weather. In fact in the Southeast, most of the bulk comb honey appears to have moved though much of it moved to other markets. It is hoped that the supply of this product will all be in the hands of the retail grocer or the consumer by mid-January. Too bad, in one way, as this loses an opportunity of keeping a market steadily supplied throughout the year.

Yes, retail sales are satisfactory, in the minds of reporters at least, in the whole area east of the Mississippi River, with not much complaint farther west; as concerns retail demand.

There has been some unfortunate cutting in the bulk-comb area which seems to have been wholly unnecessary, and has disturbed the smaller packers who have built up an excellent reputation for taking care of their customers with a superior product throughout the years.

### Jobbing Prices

Here we find a wide variety of prices from different reporters. On the whole there has been little if any drop from 1956-57 prices throughout the East and most of the South. Such sales as have been made are around the 14 cent figure for white and 2 cents less for amber. In fact there are quite a few lots which have moved at even a 15 cent figure for good white honey. And amber in the South seems to be holding up pretty well, and the markets seem to be absorbing it. Farther west, offers have been around the 13- 13½ cent level with some offers being made a cent or two lower.

### Packer and Buyer Demand

It all resolves itself on how badly the producer is wanting to sell. There seems to be a great apathy on the part of the buyer to buy. In other words, not a settled price where competition has reached some sort of a medial point. Where honey is needed the prices have been paid. But a lack of activity up till the past ten days is evident.

**Honey Wanted**—Cars and less than car. Top Prices.  
C. W. Aeppler Co., Oconomowoc, Wis.

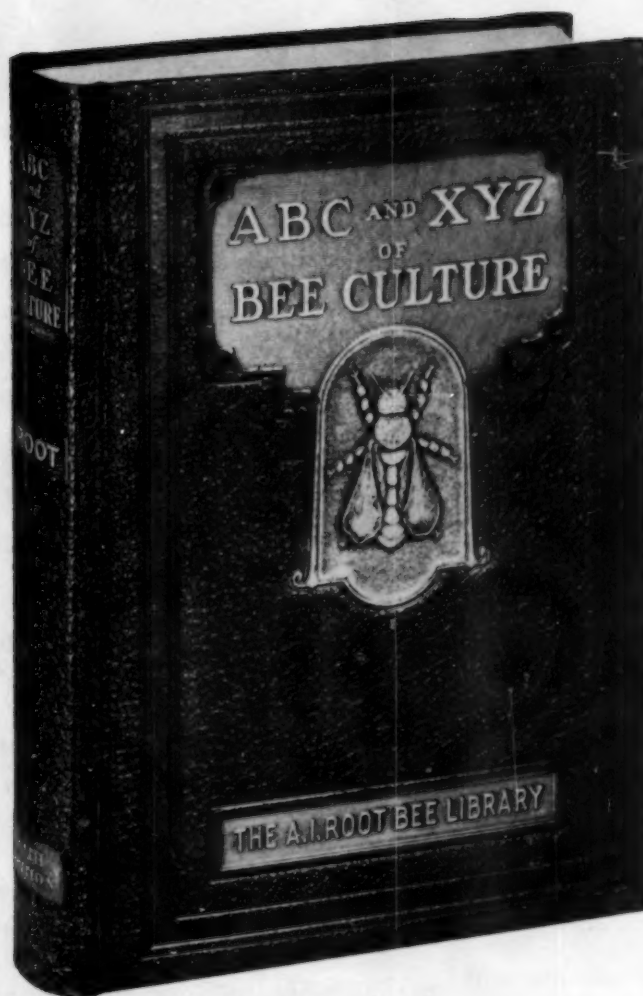
Yet much of the white honey in California has been picked up. Plenty of the amber yet to leave the producers' hands. And with a growing population and real activity on the part of the western beekeepers in a selling campaign, they should easily be able to move all their under-par production, and soon be looking farther east for fresh supplies, especially of fine white honey.

### Foreign Demand

Likely much of the stoic inactivity in buying up to now can be laid, first, to the strong desire on the part of the producer to want prices equal to a year ago, and, secondly, to the slowness with which the foreign demand has developed. A buzzing hint that Germany would need huge amounts of honey, and that the whole European picture looked especially good for American honey, has not as yet materialized, though just recently there seems to be activity in that direction. There is also the report that some of our markets are going to Central and South American suppliers, or that the European importers are waiting to see what the above countries are just now producing in the start of their new crop season.

All in all, bees, plants and moisture are excellent for this time of year. Honey moving well in retail way, producers reluctant to let their crop go at anything less than a year ago, and packers and buyers on the fence, waiting to see just what will develop, and likely hoping for the hoped-for foreign demand which would probably establish a buying price which would serve all domestic buyers as well as producers.

Not likely that support prices are having much to do with decisions.



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